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TV DECODER CIRCUITRY ACT OF 1989

HEARING

BEFORE THE

SUBCOMMITTEE ON COMMUNICATIONS

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

ON

S. 1974

TO REQUIRE NEW TELEVISIONS TO HAVE BUILT IN DECODER CIRCUITRY

JUNE 20, 1990

Printed for the use of the Committee on Commerce, Science, and Transportation

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CONTENTS

	Page
Opening statement by Senator Inouye	1
Opening statement by Senator McCain	2
Opening statement by Senator Burns	3
Opening statement by the Chairman	5
Opening statement by Senator Kasten	17
Text of S. 1974	5

LIST OF WITNESSES

Ball, John E. D., president, National Captioning Institute	62
Prepared statement	66
Dubow Sy, legal director, national center for law and the deaf, Gallaudet University	19
Prepared statement	21
Friel, Tom, Electronics Industries Assn	46
Harkin, Hon. Tom, U.S. Senator from Iowa	10
Huber, Bruce A., vice president, marketing, Zenith Electronics Corp	73
Prepared statement	75
Matlin, Marlee	13
Posell, Annette, manager, corporate development, Caption Center, WGBH-TV	35
Prepared statement	38
Richer, Mark S., director of engineering, Public Broadcasting Service	54
Prepared statement	56
Samms, Emma	15
Stone, Howard E., executive director, Self Help for Hard of Hearing People, Inc.	27
Prepared statement	30

ADDITIONAL ARTICLES, LETTERS, AND STATEMENTS

Hutchins, Jeffrey M., CEO, CaptionAmerica, statement	84
McCalip, Bernevia M., Analyst in Business and Government Relations, Economics Division, CRS, Library of Congress, statement	82
Shoup, Harold A., executive vice president, American Association of Advertising Agenices, Inc., letter	92

TV DECODER CIRCUITRY ACT OF 1989

WEDNESDAY, JUNE 20, 1990

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
SUBCOMMITTEE ON COMMUNICATIONS,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:04 a.m., in room 253, Russell Senate Office Building, Hon. Daniel K. Inouye (chairman of the subcommittee) presiding.

Staff members assigned to this hearing: Tom Cohen and Toni Cook, staff counsels; Gina Keeney and William Heyer, minority staff counsels.

OPENING STATEMENT BY SENATOR INOUYE

Senator INOUYE. This morning we gather to receive testimony on S. 1974, the Television Decoder Circuitry Act of 1989. This measure, referred to as the Decoder Act, was introduced by Senator Tom Harkin and is co-sponsored by several senators on this Subcommittee.

For nearly 20 years, the Federal Government and the Public Broadcasting Service have helped almost 24 million deaf and hard-of-hearing Americans receive televised communications through closed captioning services.

The National Captioning Institute, or NCI, and the private sector have been instrumental in expanding this special service to these citizens. Because of these efforts there are, each week, nearly 140 hours of closed caption programming. There is captioning on cable and on video cassette movies, and there is real time captioning that provides captioning services to live and special events.

Currently, the only way to access the service is through a decoder unit that is attached to a TV set. These units cost anywhere from $160 to $200, and many of us know that you buy a good TV set for this price. Because of this expense, a great many people in need of this service simply are not making use of it.

The people who close caption programs have noted the lack of use of this service. Since it takes much effort and money to provide caption services, they wonder now whether it makes sense to continue close captioning programming. I would consider such a rollback a disaster, and so we need to take some action, and soon.

Senator Harkin and others, including myself, believe that S. 1974 provides the right answer. It will require decoder integrated circuit chips, or IC chips, to be built into all new TV sets with screens 13 inches and larger that are manufactured in or imported into the United States beginning in October of 1992.

This IC chip will display closed caption TV programs. The point of contention of the decoder action is on cost, and both sides agree that there will be some added costs. I believe that spreading costs over all or most buyers of TV sets has a sound basis. First, the cost is not that significant, especially when the IC chips are produced in mass quantities. Second, by increasing access to this service, it will help bring this very large segment of our society into the mainstream. And third, I think it should be noted that there are many features on TV sets that are sold today that are used by only a small percentage of buyers, and yet we all pay for them.

At the same time, the opponents of this measure have asserted that we should only require the captioning circuitry in TV sets 20 inches or larger. That would mean that less than 40 percent of the TV sets, and only the more expensive sets, would have the capability of receiving closed captioning. This proposal would seem to defeat the purpose of this bill.

So I look forward to exploring this and the other arguments raised by opponents of this bill in more detail this morning. I look forward to hearing from the witnesses who have come here today to speak on this bill.

First we will hear from Senator Harkin, the author of the Decoder Act. As Chairman of the Subcommittee on Disability Policy. Tom Harkin has been a strong voice and champion of our disabled citizens.

Second, we will hear from supporters of the bill: Miss Emma Samms, TV, stage and movie actress; Miss Marlee Matlin, move actress and Oscar winner for her performance in "The Children of a Lesser God"; Mr. Sy Dubow of the National Center for Law and the Deaf at Gallaudet University; Mr. Rocky Stone, Executive Director of Self Help for Hard-of-Hearing People; and Miss Annette Posell of The Caption Center of WGBH of Boston.

Finally, we will hear from a group of opponents and supporters and technical experts: Mr. Tom Friel, Group Vice President of the Electronic Industries Association's Consumer Electronics Group; Mr. Mark Richer, Director of Engineering at the Public Broadcasting Service; Mr. John Ball, President of the National Captioning Institute; and Mr. Bruce Huber, Vice President of Marketing of Zenith Electronics Corporation.

On behalf of the Committee, I thank all of you for being with us this morning. Before we call upon our illustrious Senator from Iowa, may I all upon my colleague, Senator McCain?

OPENING STATEMENT BY SENATOR McCAIN

Senator McCAIN. Thank you, Mr. Chairman, and thank you for holding this hearing on this very important issue. I thank my friend from Iowa, Senator Harkin, not only for his involvement in this particular issue but on several others concerning the hearing impaired.

Mr. Chairman, we have come a long way since two years ago when you and I made efforts to ensure that every Senate office was equipped with a TDD—a telecommunications device for the deaf—which up until that time I believe a total of two or three Senate offices had been equipped. We also passed legislation which re-

quired all Federal bureaucracies to provide TDD service to the hearing impaired. Strangely enough, up until that time hearing impaired Americans as taxpayers had not been able to exercise their rights to make basic communications contact with these Federal bureaucracies. Finally, as part of the Americans with those Federal bureaucracies. Finally, as part of the Americans with Disabilities Act, there is a requirement for all telephone companies to provide TDD services to the hearing impaired, which means to me, Mr. Chairman, that thanks to you and Senator Harkin and others we have come a long way in the last few years.

I believe that this legislation is important. I think it is worthy of note that there are 150 million television sets in use in the United States. As a matter of fact, more American homes have television sets than telephones or indoor bathroom facilities. That makes for an interesting discussion.

Clearly, television is the medium by which we communicate. I do not believe that the installation of this small device in television sets places an unacceptable burden of expense on manufacturers or consumers, and I think that we have an obligation to our Nation's 24 million hearing-impaired citizens to provide them with this.

Finally, Mr. Chairman, one of the more moving experiences I have had around here in the Congress was a few months ago when for the first time the Senate of the United States' prayer was begun by a person who was hearing impaired and conveyed to millions of Americans over C-Span by captioning. I believe that that was a rather symbolic moment, in that it indicated that this Congress and this Senate is committed to providing equal access to all of our citizens, so I thank our witnesses. I thank Senator Harkin and I especially thank you, Mr. Chairman, for your long involvement in these issues.

Thank you.

Senator INOUYE. Thank you very much. Senator Burns.

OPENING STATEMENT BY SENATOR BURNS

Senator BURNS. Thank you, Mr. Chairman.

I want to thank you for holding this hearing and your demonstrated leadership on this important piece of legislation.

S. 1974, The TV Decoder Act, would require that decoder circuitry chips be installed in most televisions—those with screens larger than 13 inches—which are manufactured in, or imported into, the United States. The circuitry chips would display closed captioned television programs.

Mr. Chairman, I am proud to announce today my enthusiastic support for, and co-sponsorship of, The TV Decoder Act. In doing so, Mr. Chairman, I join with you and Senators Hollings, McCain, Gore, Bensten, Pressler, and Kerry as cosponsors from the Commerce Committee.

I made my decision for three primary reasons.

First, the federal government has spent a great deal of money to ensure that closed captioning services are made available to the 24 million hearing-impaired people in the United States. Many, however, still do not benefit from closed captioning because of the high cost of the decoders. At present, the cost of a decoder—approxi-

mately $160–$200—is too expensive for many potential users. A decoder chip, which can be easily built in to all television sets, can be manufactured for $5.

Thus, as you well know, Mr. Chairman, development of a television with a built-in decoder is a relatively inexpensive way for providing captioning for those people who benefit from captioning but cannot afford to purchase a separate decoder.

Beyond this, the amount of television programming that is captioned is closely linked to the number of decoders sold. As a result, the larger closed captioned viewing audience—which will result from passage of this bill—will encourage television producers and advertisers to caption more programs and commercials.

Finally, passage of this bill could benefit one of every three households in the United States. For in addition to the 24 million hearing impaired people in the country, closed captioning can be used as an important educational tool to benefit remedial readers and learning disabled students, to assist in teaching over 27 million functionally illiterate adults to read, and in helping over 3 million people learn English as a second language.

With so very much to contribute, closed captioning and The TV Decoder Act can contribute significantly to the quality of life for millions of American citizens. And, as a result, Mr. Chairman, I join you and other members of this Committee in working for The TV Decoder Act's expeditious passage by the Committee and the Senate.

Once again, thank you, Mr. Chairman, for your demonstrated leadership on this most important communications issue.

Again, I want to associate my remarks with Senator McCain's and yours as enthusiastically supporting this piece of legislation. Just from a simplistic standpoint, this makes more common sense. Where decoders before were costing around $160 to $200—it was very costly to add to your television—now we are adding a $5 chip, and it is through the wonders of technology that we can do these things now, and this should be done.

Also, we do not want to overlook the fact that this is going to be a great thing for some of our people—27 million people in this country—who have a problem reading, for it will help them learn to read and to relate. So it has a myriad of advantages, this legislation does.

I think the United States Senate, and especially the Chairman of this Committee, has taken the leadership on this and has recognized not only a specific need but something that can be used by the total population of this country. I want to applaud him. I am happy to be a co-sponsor of this legislation, and I want to thank Senator Harkin for his efforts and the people who will be testifying this morning. I look forward to their comments.

Thank you, Mr. Chairman.

Senator INOUYE. Thank you, Senator Burns. I have an opening statement that Senator Hollings would like to have included in the hearing record.

[The statement and bill follow:]

OPENING STATEMENT BY THE CHAIRMAN

I want to thank Senator Inouye for holding this hearing on S. 2358, the Digital Audio Tape (DAT) Recorder Act. It was three years ago that this Subcommittee met to discuss similar concerns with S. 506, the DAT bill introduced in the 100th Congress. The debate continues as to the need for legislation. Clearly the DAT recorders represent an advanced communications technology that would benefit consumers. At the same time, they raise legitimate intellectual property right questions. The question before us today is how we balance these interests in legislation. We should also ask ourselves whether it would be better for us to wait on this issue to do a more comprehensive measure as new technologies rapidly emerge, or whether it is best to act incrementally with each technological advancement.

I look forward to a spirited discussion on these issues and any other issues that may surface during this hearing.

101ST CONGRESS
1ST SESSION

S. 1974

To require new televisions to have built in decoder circuitry.

IN THE SENATE OF THE UNITED STATES

NOVEMBER 21 (legislative day, NOVEMBER 6), 1989

Mr. HARKIN (for himself, Mr. MCCAIN, Mr. INOUYE, and Mr. SIMON) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

---

A BILL

To require new televisions to have built in decoder circuitry.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION. 1. This Act may be cited as the "Television Decoder Circuitry Act of 1989".

FINDINGS

SEC. 2. The Congress finds that—

(1) to the fullest extent made possible by technology, deaf and hearing-impaired people should have equal access to the television medium;

(2) closed-captioned television transmissions have made it possible for thousands of deaf and hearing-impaired people to gain access to the television medium, thus significantly improving the quality of their lives;

(3) closed-captioned television could provide access to information, entertainment, and a greater understanding of our Nation and the world to over 24,000,000 people in the United States who are deaf or hearing-impaired;

(4) closed-captioned television could provide benefits for the nearly 38 percent of older Americans who have some loss of hearing;

(5) closed-captioned television can assist both hearing and hearing-impaired children with reading and other learning skills, and improve literacy skills among adults;

(6) closed-captioned television can assist those among our Nation's large immigrant population who are learning English as a second language with language comprehension;

(7) currently, a consumer must buy a TeleCaption decoder and connect the decoder to a television set in order to display the closed-captioned television transmissions;

(8) technology is now available to enable that same decoder circuitry to be built into new television sets during manufacture at a nominal cost by 1991; and

(9) the availability of decoder-equipped television sets will significantly increase the audience that can be served by closed-captioned television, and such increased market will be an incentive to the television medium to provide more captioned programming.

DISPLAY CLOSED-CAPTIONED TELEVISION

SEC. 3. Section 303 of the Communications Act of 1934 (47 U.S.C. 303) is amended by adding at the end thereof the following:

"(u) Require that apparatus designed to receive television pictures broadcast simultaneously with sound be equipped with built-in decoder circuitry designed to display closed-captioned television transmissions when such apparatus is manufactured in the United States or imported for use in the United States, and its television picture screen is 13 inches or greater in size.".

SHIPPING OR IMPORTING

SEC. 4. (1) Section 330 of the Communications Act of 1934 (47 U.S.C. 330) is amended by redesignating subsection (b) as subsection (c), and by adding after subsection (a) the following new subsection:

"(b) No person shall ship in interstate commerce, manufacture, assemble, or import from any foreign country into the United States, any apparatus described in section 303(u) of this Act except in accordance with rules prescribed by the Commission pursuant to the authority granted by that section. Such rules shall provide performance and display standards for such built-in decoder circuitry. Such rules shall further require that all such apparatus be able to receive and display closed captioning which have been transmitted by way of line 21 of the vertical blanking interval and which conform to the signal and display specifications set forth in the Public Broadcasting System engineering report numbered E–7709–C dated May 1980, as amended by the Telecaption II Decoder Module Performance Specification published by the National Captioning Institute, November 1985. Five years from the date of promulgating the original rules required by this section, the Commission shall evaluate compatibility issues and advancement in television technology and shall take any action it deems necessary to amend such rules so as to ensure that such decoder chip circuitry is capable of continuing service to closed caption consumers regardless of new broadcast technologies. This subsection shall not apply to carriers transporting such apparatus without trading it.".

(2) Section 330(c) of such Act, as redesignated by this Act, is amended by deleting "and section 303(s)" and inserting in lieu thereof ", 303(s), and 303(u)".

EFFECTIVE DATE

SEC. 5. Sections 3 and 4 of this Act shall take effect on October 1, 1992.

RULES

SEC. 6. The Federal Communications Commission shall promulgate rules to implement this Act within 180 days after the date of its enactment.

Senator INOUYE. Now may I call upon the author of The Decoder Act, Senator Harkin?

STATEMENT OF HON. TOM HARKIN, U.S. SENATOR FROM IOWA

Senator HARKIN. Mr. Chairman, thank you very much for having this hearing. I am honored to be here with you, Senator McCain, and Senator Burns, but I am also honored to be here with Marlee Matlin and Emma Samms, two individuals for whom I have a great deal of respect. Ms. Matlin has testified before my Disability Policy Subcommittee on a couple of occasions, and I am delighted that she has graced us with her presence here today. I want to thank Emma Samms for being here, also.

Mr. Chairman, I do not know that I can really add much to what you said and to what Senator McCain and Senator Burns have said. You have really laid it all out. The Americans With Disabilities Act, Mr. Chairman, is about to become law. We are meeting now in conference. We are about to go into conference with the House. There are two minor issues to be resolved, and then we will get it down to the President for his signature, hopefully within the next couple of weeks.

The Americans With Disabilities Act is going to open up a whole new world for people with disabilities in our society—jobs, public accommodations, public transportation and telecommunications.

Senator McCain, I do not believe you gave yourself enough credit. Mr. Chairman, it was through the efforts of Senator McCain that we have a whole title in the ADA bill that deals with telecommunications. The telecommunications section of the ADA mandates a system of relays throughout the United States so that any hearing-impaired person can communicate with any other hearing-impaired person, or another hearing person, anywhere in the United States. I want to thank Senator McCain for all of his work and his effort to get telecommunications incorporated into the bill.

It is no secret that my brother is deaf. I have a TDD and he has a TDD, and it is fine when I want to call him whether I use my home or office TDD. But if I need to get a hold of him using my car phone or if I am traveling it is almost impossible. So these relay systems will allow the hearing impaired person to communicate with anyone, any time, any place.

So all of these things will be made accessible to people with disabilities, but not television. As you pointed out, Mr. Chairman, television is pervasive. Senator McCain said there are 150 million TV sets in this country. We rely upon television not only for entertainment, which is very important. We rely upon television for education, for information, for news, for things that affect our daily lives, and perhaps for things that can save our lives.

I am reminded of the story that Dr. King Jordan told about when he was in San Francisco. Now, Dr. Jordan, as you know, is a deaf individual and the President of Gallaudet University. He happened to be in San Francisco last year during the earthquake. He was in his hotel room.

Of course, when things started to shake, he got pretty frightened as everyone did. But he had his television set on watching the

World Series. The World Series happened to be closed captioned and so ABC was able to tell with closed captions what was happening. Dr. Jordan got that information. Had it not been World Series time, he would not have known what was going on.

Again, to illustrate the point that television can save lives, we get our information, whether it is storm warnings, tornado warnings out our way, or the flood warnings happening out in Iowa right now, whatever it might be, this is the kind of information that comes across through television screens that is not available to deaf and hearing impaired individuals.

As you pointed out, Mr. Chairman, the bill requires all TV sets 13 inches or above to have this little chip. I brought one. Here is one with me, right here. Here is the size of it [indicating]. It is a little chip. Compared to the decoder, it is about 1/100th of the size of a decoder. It is that little box right on top of the television right there [indicating].

Now, again, what is so important about this? You might say why can't people go ahead and buy the decoders and put them on the television sets? My brother had one. He had one of the first ever made. It is a lot bigger than that one. They have down-sized them since then. But if he is traveling, he cannot pick it up and put it in his pocket and take it with him. When he stays in a hotel or a motel, or if he is just out visiting friends, he cannot take his decoder with him. This built in chip allows deaf and hard-of-hearing people to take their decoders with them no matter where they go—hotel rooms, convention centers, visiting Washington, D.C., visiting friends, no matter where they may be. They can pick up closed-captioned television just as they can at home.

The bill has strong bipartisan support. Mr. Chairman, I know you are a co-sponsor, as is Senator McCain and Senator Dole. It has very strong bipartisan support. Over 40 national organizations are supporting this bill. Now, you would suspect that all of the disability groups would be supporting it, and that is true, but so are the the National Education Association (NEA), the National Parent-Teachers Association (the PTA), the National Council of Senior Citizens, the AARP and the Literacy Volunteers of America, whose Honorary Chairman is Barbara Bush.

Now, why would they be supporting this bill? Mr. Chairman, when I first started on this, of course I was interested because of my brother and interested in the mobility aspect of it. We wanted to provide closed captioning to as wide an audience as possible in the deaf and hard-of-hearing community, and also Mr. Chairman—I have to say this right now—because these decoders [indicating] cost about $200.

We have more than 24 million deaf and hard-of-hearing people in the United States, and yet we have only sold about 300,000 decoders. I have to tell you that the reason is because a lot of people who are deaf and hard-of-hearing cannot afford the $200 to buy the decoder. A lot of them do not know how to hook it up. You have to hook up all of these wires and everything in the back, and it is a little intimidating. So that is why we have only sold 300,000, although there are 24 million deaf and hard-of-hearing people.

So I thought about it from that aspect, but since that time I have begun to broaden my view of just what the impact of this will have.

I came across a story in "Education Week," June 6, 1990, "Television Decoder Touted as Reading Instruction Aid." It talked about a Los Angeles reading teacher who shows students—and I am just quoting from this, Mr. Chairman—all of whom have poor reading skills, a videotaped episode of the Cosby Show, or another popular television comedy.

Two or three minutes into the program he turns off the sound, forcing the students to read the captions on the screen in order to follow the story. "What I have found," said Mr. Goldman, "is that the students will watch the screen with more intensity than they ever will when they are reading a book." So he is forcing these students to learn how to read and to read more rapidly. That is why the Literacy Volunteers of America is supporting this bill.

I will just quote another one here. Carolyn Parks, a Maryland educator, uses the decoders to teach English to elementary school students for whom English is a second language. She shows them noncaptioned segments of "Sesame Street" and "3-2-1 Contact." She stops the tape and then comes back with the closed captioning, therefore teaching students for whom English is a second language, how to learn English.

So I see this bill not only impacting the deaf and hard-of-hearing but being a great educational tool for slow learners. According to Secretary Cavazos, who testified before my Education Appropriations Subcommittee, there are 27 million adult Americans who are functionally illiterate. As he said, they can read, maybe a McDonald's sign, or something like that. But to pick up the morning newspaper and actually read it, they cannot do it. This bill will help make those 27 million individuals more literate and more productive in our society.

40 percent of our older Americans have a hearing loss, and yet only 90 out of 1,400 local news broadcasts in the United States are captioned—90 out of 1,400. As you said, Mr. Chairman, the industry has said they thought they might have to cut back on closed-captioning because of the lack of the use of decoders. They need more out there. Well, this is the way to do it.

You can do it by providing this small amount for each television.

Let me quote the ABC television network. Here is a letter to the Commission on the Education of the Deaf from the American Broadcasting Company. I quote: "If decoders were more widely used and viewership to grow, the marketplace can be relied upon to increase captioning because more viewers would be reached at a decreased per capita cost. Increased decoder ownership, not just more captioning, is required for a strong, self-sustaining, captioning service."

So, again, in closing, Mr. Chairman, the Television Decoder Circuitry Act has the potential for finally making television programming fully accessible to deaf and the hard-of-hearing people. It will also provide us a very valuable tool in fighting illiteracy throughout our country.

Again, Mr. Chairman, I want to thank you for having the hearing and for moving the bill expeditiously. I hope that we can move it through rapidly, so that it can dovetail with the Americans with Disabilities Act. The ADA is going to be signed by the President very soon. If we can get the Television Decorder Circuitry Act

through, and down to the President's desk, it will dovetail very nicely with the Americans With Disabilities Act.

As I said, Mr. Chairman, it's just five bucks—that's all it takes—five dollars and every television set can be fully accessible to every citizen in this country.

Thank you, Mr. Chairman.

Senator INOUYE. May I ask a question?

What are your thoughts on the industry suggestion that this measure be limited to 20 inch television sets and bigger?

Senator HARKIN. Well, Mr. Chairman, as you pointed out, I think the figures are such that that would cut out about 40 percent of the television sets, if I am not mistaken.

When you get down to 13 inches or above, then you really cover all of the television sets that are being used in commercial settings, homes, and businesses. Also, once you get below 13 inches, close captioned is pretty hard to read—once you get that small a screen. But with 13 inches and above, we have found that on the 13 inch set you can read the captioning very easily.

Again, as ABC said, there is a market pull on this. If we want more captioning, there has to be a greater market pull. If you want more of a market pull, you have to have more television sets with the device in it.

Again, through mass production, the cost of this chip will be a lot lower. That is why I think we have to have the 13 inch and above sets.

Senator INOUYE. Thank you.

Senator McCain.

Senator MCCAIN. Thank you very much, Senator Harkin.

Senator HARKIN. Thank you again, Senator McCain, for all you have done.

Senator INOUYE. Senator Burns.

Senator BURNS. I have no questions. But I want to thank you for the energy that you have put into this.

Senator HARKIN. Thank you very much, Senator Burns.

Mr. Chairman, I am going to have to apologize. I have an Agriculture Committee meeting that I have to go to, to protect my farmers. I did want to be here.

But I just want to apologize to Marlee and to Emma if I have to leave in the middle of their testimony.

Would you excuse me, please.

Senator INOUYE. Now it is my great privilege and honor to call upon a most inspiring and lovely human being, Ms. Marlee Matlin. Her testimony will be presented by Mr. Jack Jason and Ms. Matlin will sign her testimony.

Ms. Matlin.

STATEMENT OF MARLEE MATLIN, FALLS CHURCH, VA, AS INTERPRETED BY JACK JASON

Ms. MATLIN. Thank you, Mr. Chairman.

Thank you, Senators McCain and Burns.

You know, as a little girl growing up in Chicago, I had dreams just like any other child—to be a policeman, to be a dancer, to be a

teacher, to be an actress. I was always told to follow my dreams and be what you want to be, that no dream was beyond my reach.

But in many of my dreams, I sat by and watched without understanding a single word of what was being said. As a child, only through my mother could I understand the antics of "The Electric Company," or only through my father could I understand what Mannix was saying to his Girl Friday. Only through my brother could I understand the laughter in that program, "All in the Family."

There was no such thing as closed captioned television, and those moments of dreaming were not open to me.

One day, then President Ford was speaking on television and my mother had to explain what the President was saying. By that time, I was ten years old, and I thought why does Mom have to tell me what he is saying. Why doesn't he tell me himself? So I wrote a letter and asked for closed captioning, because I was not used to being shut out.

When television finally began to be closed captioned, I watched everything that came on, and I'm telling you, everything. Who wouldn't? Imagine being able to watch TV all your life without any sound, and then someone, suddenly, one day turning on the sound for one hour. It was really a shock.

So I watched anything from "Three's Company" all the way to "Masterpiece Theater," which, for a ten year old, I guess I didn't understand what was going on. The words were the most important thing. The words connected to the dreams I had, and the dreams finally became true for the first time. It was really thrilling for me.

Now the words of the people who make the news, the artists, the actors, the small and the large, have been coming through. From "There's a hostage crisis in Iran," to "Blake Carrington, I'll get even with you," the world has finally opened up to 24 million hearing impaired and deaf individuals in the United States.

But there are many words and dreams which cannot be reached because not all network programming, cable broadcasts, news bulletins and home videos are closed captioned. It is not enough. We need complete accessibility for those hearing impaired and deaf individuals.

Like millions of other Americans, I love to watch home videos. But many at my local video store are not closed captioned. This doesn't include just recent releases, but classic films, like "The African Queen," "All About Eve," and the films of Frank Capra and Alfred Hitchcock. It is sad, and it is true.

This legislation can insure that there is an incentive for more closed captioning. By mandating the built-in decoders and the circuitry into all television sets, all new television sets, this would insure a wide audience can benefit from closed captioning. It would also reach an audience of over 24 million hearing impaired individuals, and it will also help many millions of children learn how to read, and will assist those millions of individuals who are learning English as a second language.

But, most of all, it can make a partial world whole.

I came here on behalf of those individuals who have dreams, but who are denied the words to their world. This legislation will open the doors to full accessibility to television to all of us.

Thank you, and thank you for taking the time to come and listen. I appreciate it.

Thank you very much, Mr. Chairman.

Thank you very much, Senators.

Senator Inouye: Well, what can I say? This has been an inspiring experience for me.

I have been chairing committees now for 31 years, and I think I shall say at the outset, after having heard one witness, I am supposed to be a very objective Senator, but you got my vote.

Ms. MATLIN. Thank you.

Senator INOUYE. I have no questions to ask. You have answered all the questions.

May I call upon Senator McCain.

Senator MCCAIN. I have no questions, Mr. Chairman. Thank you.

Senator INOUYE. Senator Burns.

Senator BURNS. No questions. Thank you.

Senator INOUYE. Thank you very much, Ms. Matlin.

Now may I call on Ms. Emma Samms.

STATEMENT OF EMMA SAMMS, LOS ANGELES, CA

Ms. SAMMS. I would like you to hold the thought you have in your minds right now and remember it because it is terribly relevant to the subject at hand, and that is the necessity for closed captioning on most new televisions in this land.

I would like to suggest that the feeling you had, watching me sign without an interpreter, would have been one of irritation and frustration. And you have a right, sitting in this Committee room, to understand what is going on. You were able to understand Marlee because she had an interpreter.

That is the difference that closed captioning makes to the deaf and the hard of hearing. It is frustrating and demeaning to be in a situation where one cannot understand the common language of the people with whom one wishes to associate.

Picture in your minds, if you would, the problems that face deaf or hard of hearing Americans today, in 1990. While we have made great strides in understanding that physically handicapped people have a right to access our public facilities, so that libraries, for example, have a ramp that allows people in wheel chairs to enter, so that rest rooms are usable in airports, and so forth, we have not paid enough attention to allowing our deaf and hard of hearing citizens equal access to the information and entertainment conveyed by television.

For only a few dollars per set, most new televisions in the United States could be designed to have closed captioning capabilities. This is a perfect example of something that is so financially trivial to the manufacturer and sellers of these sets. But it needs the help of government because, in a competitive marketplace, no one company within the industry will take the first step.

This is a vicious circle at work because so many televisions are not equipped with closed captioning capabilities. Many producers, network television companies, and studios do not bother to produce their television material with closed captioning. If the hardware existed in more American homes, it would become important to

serve the 10 percent of the American population who are deaf and hard of hearing. This legislation will insure all programming is accessible to this important part of our society.

This bill is needed because, as individual performers, there is not much we can do. As an actress, I try very hard to insure that all of my work is closed captioned. But without this technology in most new sets, how can I logically tell my producers that the programs should be closed captioned?

The hearing impaired community is a representative cross-section of American society. There are many bright, articulate, involved people who are frustrated in their quest to be committed members of society because what has become the primary means of societal communication, television broadcasting, is, to them, not fully accessible.

In 1990, we would never tolerate a public library where a person in a wheel chair could not get at the stacks. Yet, a lock and key is placed on many books, in this case television, that a deaf person would seek to consult or understand.

People who are hearing impaired are often financially disadvantaged by reason of their handicap, and the number of expenses incurred by a hearing impaired person is prodigious. If they buy a closed captioned decoder, it costs nearly $200. On the other hand, for 1 percent of that price, most new televisions could be equipped with closed captioning capabilities.

I am the co-founder of the Starlight Foundation, which is a charity that grants wishes to children who are seriously ill. I work with many people who struggle to make wishes come true for these special kids, and it is hard work because these are difficult wishes to deliver. This bill, by a wave of your magic wands, can dramatically change the life of over 24 million Americans almost overnight.

Let us remember what we are talking about financially. We are not suggesting a public burden. We are talking about adding the price of a Big Mac and a shake to the cost of a television.

Do we need perhaps to ask ourselves whether a comprehension handicap isn't the source of a subtle, nevertheless as meaningful, form of discrimination as that which we have happily outlawed in the area of physical disability?

How can we justify physical access if we draw shutters over our television broadcasting? We would be depriving eager and involved citizens of the information and entertainment they crave in their quest to live full and meaningful lives.

Is the cost of a Big Mac and a shake too much to ask?

Mr. Chairman and Members of the Subcommittee, I humbly suggest that there is no nobler government action than bringing the force of law to help an underprivileged minority to function as more effective citizens.

Thank you very much.

Senator INOUYE. Ms. Samms, you have brought up an answer to one of the major charges that will be made by those who oppose this measure, and that is why should all of us pay for a unit that we may not use. You have just pointed out that this is part of the American philosophy of life. We provide access facilities for the disabled when most of us do not need them. I think that is part of the humanity that, hopefully, remains in us.

I think with that in mind, this measure will go flying through.

Senator McCain.

Senator MCCAIN. Mr. Chairman, I want to thank the witness for her very important testimony. She mentioned that with a wave of our magic wands, we can make this legislation a reality. That is one of the more different descriptions I have heard about how we do business around here.

But I would make a motion, Mr. Chairman, that this Subcommittee wave its wand and report this bill to the full Committee. I make that motion with the knowledge that we really only have a few more weeks of business in this session and, if we would like to get this legislation into law and passed by the Senate before we leave for the year, I think it would be important to expedite the process.

So I would move that we report the bill to the full Committee.

Senator INOUYE. I should point out to Ms. Matlin that I promised her this matter will be expedited. But never before in the history of this Committee has a measure been reported out after hearing only three witnesses.

Hearing no objection, this measure will be reported to the full Committee.

[No response.]

Senator INOUYE. Do you see how powerful you ladies are?

Senator Kasten.

OPENING STATEMENT BY SENATOR KASTEN

Senator KASTEN. Mr. Chairman, first of all thank you for having this hearing. I am happy to be here.

I would also like to ask unanimous consent to add my name to the list of co-sponsors of this important bill.

Senator INOUYE. Without objection, it is so ordered.

Senator KASTEN. In recent months, I have had the opportunity to interact with deaf and hearing impaired citizens, and I found them to be energetic and committed, and their thirst for knowledge knows no bounds. I think that this bill will help satisfy that thirst.

This bill is not just for the deaf and the hearing impaired. It is going to affect the hearing population as well. I think that the bill may be part of the answer to the literacy problem that affects our Nation.

Studies have shown that exposure to closed captioned television improves students' word recognition, reasoning, comprehension and also language retention skills, and it is also a very effective motivational tool for learning.

Mr. Chairman, Members of the Subcommittee, let me ask you a question. What would you feel if your children had reading and writing problems? What would you do to solve that? It would take hours and hours of practice and extreme patience to help your children. Now the average person watches about seven hours of television a day. Suppose there are 24 hours of captioning and each person watches seven hours of it? Think of how much English that person could absorb. The person would be enjoying the programs and simultaneously learning important language skills.

Another group that stands to benefit if this bill is passed are the senior citizens. Often old age is accompanied by hearing loss. More often than not, the elderly have a difficult time trying to listen to TV. Some elderly people buy hearing aids to compensate for that hearing loss. But hearing aids cost money.

I think we also need to recognize the question of cost, Mr. Chairman, which you and Senator McCain brought up. I don't know how much it is going to cost. I have seen references to $5, to $20. But the bill has many, many merits, and it is important that we pass it.

Some may consider it too broad to mandate all television sets by all manufacturers. And maybe there is a way that we could say that a manufacturer, would have one of its 13 inch sets, one of its 18 inch sets, one of its 21 inch sets, et cetera, so equipped. There may be a way that we can balance these interests of cost and have a more narrow focus to determine which models of television sets this bill applies to.

It is something that I think we can work toward and work with. But I think it is important that we recognize the fact that we want to move forward with this legislation. I think it is also important to recognize that most of the cost estimates are based on one, two, ten, or 100. If all of a sudden we have all sets manufactured with decoders, the costs, obviously, are going to be going down because of the quantity being produced.

For many years, deaf and hearing impaired citizens have been left out of American society. They have never been able to enjoy the same range of information as their hearing counterparts. News broadcasts, talk shows, sitcoms, sporting events, we could go through an endless list. Right now, I have an intern working on my personal staff who is deaf and who attends Gallaudet University. I am starting to learn the true barrier that these Americans face when they obtain information through their eyes and not their ears. We hearing Americans need to take that into account.

I believe we have a great opportunity here, Mr. Chairman, to move forward. I think that we need to recognize that, just like us, hearing impaired people are capable of communicating by telephone, but they use a different procedure, a device called the "telecommunications device for the deaf," or TDD. The TDD is a typewriter kind of device. I have used it in my office to communicate with my deaf constituents.

The TDD is an important innovation for our deaf and hearing impaired neighbors, and I think the passage of this bill will be just one more step toward full citizenship for members of this community. That is why I am lending it my eager support.

I thank and congratulate you, Mr. Chairman, for passing the bill from the subcommittee to the Committee. I think we have to recognize that time is short. We probably have 40 or so legislative days before the end of this session, and I hope that we can pass this legislation.

Thank you, Mr. Chairman.

Senator INOUYE. Before I call upon Senator Pressler, I would like to point out to people here that at this moment, there are 18 Senate Committees holding hearings throughout the capital. As a result, many of the Senators here (indicating) are at other committees, and most of them who sit on this side (indicating) are chair-

men of these committees. So, therefore, I hope you will understand that their absence in no way suggests a lack of interest.

Before I entertained the motion to report this measure out, I did check with my colleagues and I could say that there was no objection to it. That is the level of our interest here.

I can assure you that all of us here are deeply concerned and deeply interested.

Senator Pressler.

Senator PRESSLER. Mr. Chairman, I would like to hear the next witnesses. This is a complicated problem.

I, too, will have to go to another committee at 10:00. The Banking Committee is going to solve the S&L problem this morning.

So we go from one complicated issue to another.

But thank you very much.

Senator INOUYE. Thank you.

Now may I call upon Mr. Sy Dubow of the National Center for Law and the Deaf, Gallaudet University.

STATEMENT OF SY DUBOW, LEGAL DIRECTOR, NATIONAL CENTER FOR LAW AND THE DEAF, GALLAUDET UNIVERSITY

Mr. DUBOW. Thank you, Mr. Chairman.

I am reluctant to say anything after your positive recommendation. But I want you to know that King Jordan wishes he could be here. He really wishes he could be here. But he is running now on the Great Wall in China, and I think you will agree if anyone can bring down their wall of silence, it is Dr. Jordan.

I am hard of hearing. My mother is hard of hearing, and my grandfather was hard of hearing. For three generations, other family members had one common refrain: turn down the volume.

And they did not always say "please."

In living rooms across America, these family arguments persist.

Jeff Hutchins of the American Data Captioning has told me this morning the true story of his stepmother, who is hard of hearing. She always keeps the television on very loud. But she refuses to buy a decoder, saying, "That's for deaf people." After many complaints from neighbors, her husband brought in a decoder, and she is finally seeing her favorite programs closed captioned. And the volume has gone down.

Now, I am not suggesting this morning that closed captioning is the panacea for family discords. But it helps.

Marlee Matlin has eloquently talked about the benefits of closed captioning. But they are not fully accessible to millions because, as has been pointed out earlier by Senator Harkin, of the small number of separate decoders that are in use. And this will continue because of cost, stigma, especially for senior citizens, and the difficulty of installing the decoder.

The Commission on Education of the Deaf indicated that this small number of decoders is resulting in a lack of commercial incentives for private funding of captioning. We see that in the very few daytime programs that are closed captioned, late night programs, or local news, as Senator Harkin pointed out.

He mentioned that ABC coverage of the San Francisco earthquake was closed captioned which enabled King Jordan to follow it.

However, for most deaf people in the Los Angeles and San Francisco areas during the recent quakes, local news affiliates did not provide closed captions with their reports.

Now, after ten years, we finally have achieved in prime time full captioning. But there is no guarantee that this will continue, especially during times of economic belt tightening.

Corporate supporters look to the numbers of people who receive closed captioning, and, therefore, the audience for captioned services must be enlarged to provide these market incentives. As Senator Harkin has pointed out, there is a potential audience out there that is enormous. This built-in decoder circuitry can reach this potential audience at a nominal cost. One designer of the decoder chip, EEG Enterprises, estimates in mass production that the chip will go below $3.

The Federal Government Department of Education spends $6 million annually on closed captions. This bill will insure that that money will not be wasted.

Now, this Committee, as you know, works under the Communications Act of 1934, which says "to make communications services available so far as possible to all the people in the United States."

Senator Pressler worked on the Hearing Aid Compatibility Act to make sure that hard of hearing people have access to the telephone. As Senator Harkin pointed out, with the passage of the Americans with Disabilities Act and the requirement of the nationwide telephone relay system, in which Senator McCain played a key role, we are going to achieve universal telephone service for deaf people. But it took 55 years, and we still do not have universal service to television.

This Committee has tried hard to make sure that disabled people and those on the bottom of the socio-economic ladder have access to the benefits of the communications system. The electronics industry, however, has suggested we limit this legislation to only one model at each screen size above 20 inches, mainly the higher priced sets.

That limitation will make it difficult to achieve the goal of universal service, and make it very difficult for those most in need to enjoy the benefits of closed captioning. They are basically suggesting custom-built sets. What we know about anything that is custom built is that it is going to be more expensive.

In comparison, if you put the chip into most television sets, economies of scale will drive down the costs to insignificant levels.

Now this is the prototype of the chip (indicating), and the track record of both Japanese and Korean television manufacturers demonstrates their ability to miniaturize technology. They will make this a lot smaller, and at a reduced cost. The TV industry is also highly competitive. If any company tells you that this chip (indicating) will cost more than $20 in a store, I suggest they are quoting prices for the Pentagon and not for the American consumer.

Thank you very much.

[The statement follows:]

STATEMENT OF
SY DUBOW, LEGAL DIRECTOR
NATIONAL CENTER FOR LAW AND THE DEAF
GALLAUDET UNIVERSITY

Mr. Chairman and Members of the Subcommittee: My name is Sy DuBow and I am the Legal Director of the National Center for Law and the Deaf at Gallaudet University. I want to thank you for this opportunity to testify on behalf of Gallaudet University and the National Center for Law and the Deaf in support of S. 1974 introduced by our good friend, Senator Tom Harkin, and co-sponsored by you, Mr. Chairman.

I am hard of hearing, my mother is hard of hearing and my grandfather was hard of hearing. For three generations, other family members have had one common refrain--"Turn down the Volume." And they did not always say please. In living rooms across America, these family arguments persist. Jeff Hutchins of American Data Captioning has shared with me the following true story. His stepmother who is hard of hearing always put the TV on loud. She refused to buy a separate decoder saying that was for deaf people. After many complaints from neighbors and family members, her husband brought home a decoder. After seeing her favorite shows with captions, she turned down the sound to normal levels. Now they are all enjoying television. I am not saying closed captioning is the panacea for family discords. But it helps.

Today, television is a great socializing force. It has become a key outlet for entertainment and a crucial link to news, information, and

education from local city halls to world capitals. We, at Gallaudet, are especially excited about how closed captioned programming helps teach literacy skills, improves students' language skills and reading comprehension, and is an effective way to teach English as a second language. In 1984, the National Captioning Institute (NCI) surveyed 70 of the largest schools for deaf and hard of hearing children on the value of closed-captions. Over 94 percent of the schools' administrators thought their students had significantly benefitted from viewing captioned programs.

But the benefits of television are still not fully accessible to millions of deaf and hard of hearing Americans, as well as to those millions of people who can use it to learn the English language. The main reason for this lack of full access is the small number of separate decoders in use. To many deaf and hard of hearing people, the purchase of a separate decoder at around $200 is an economic hardship. A Lou Harris survey found that two-thirds of all disabled Americans between the ages of 16 and 64 are not working. Those disabled people who are working are often in low paying jobs. Cost is also a deterrence to many senior citizens with a hearing loss, the majority of whom have annual incomes of less than $25,000. Cost, stigma, general intimidation with technology, especially with the difficulty in installing decoders, have all contributed to the small number of

decoders purchased. NCI estimates that since decoders have been on the market, fewer than 300,000 have been sold.

The survival of closed-captioned television programming depends on the wide use of the decoder. In its report in 1988, the Commission on the Education of the Deaf explained that the low number of decoders purchased by consumers has resulted in a lack of commercial incentives for private funding of captioning services. This has been one of the main impediments to a self-sustaining captioning service.

This lack of market incentive has resulted in a great number of television programs and VCR movies not being closed captioned. Currently, few network daytime and late night shows are closed captioned. Only 90 out of 1400 broadcast affiliates close caption local news programs. During the recent San Francisco earthquake and quakes in the Los Angeles area, local news broadcasts failed to provide captions to accompany their reports. Advertiser-supported basic cable TV channels barely caption any of their programs. Very few movie classics now widely available in video stores have been closed captioned. There is also no guarantee that present full prime time captioning, that took ten years to achieve, will continue without market incentives, especially when networks are tightening their belts. Corporate supporters of television programs want to know the numbers of persons who receive closed captioning before they contribute to closed captioning.

The audience for captioned services must be enlarged to provide these market incentives. The potential audience that can benefit from closed captioning is enormous. The potential audience includes 24 million deaf and hard of hearing citizens, 3 to 4 million people learning English as a second language, 27 to 29 million American adults with literacy problems and the millions of children learning to read.

Today, technology offers a solution to this threat to the future of closed-captioning. Decoder circuitry built right into new television sets will soon be available at a nominal cost. One designer of the decoder chip, EEG Enterprises, estimates that the mass production cost of the chip will go below $3.00. EEG Enterprises, Inc., states in the attached letter:

> "[W]e would expect that the ASIC (chip) we are designing would cost $3.00 each in 10-20 million/production year quantities . . . With further improvements now in development . . . it is quite possible that the chip cost could eventually move below the $3.00 level."

The federal government spends over six million dollars annually on closed captioning. Since the late 1970's, the federal government has invested over 45 million dollars in closed-captioning. The Decoder Circuitry Act of 1990 would insure that this money will not have been wasted. By requiring decoder chips to be included in all televisions with screens 13 inches or larger, the legislation will insure that closed captioning will continue to enhance the lives of all Americans who need it.

5

This legislative approach is similar to earlier Congressional action on the Hearing Aid Compatibility Act of 1988 and the All Channel Receiver Law of 1962. The Hearing Aid Compatibility Act required all telephones manufactured or imported into the United States after August 1989 to be compatible with hearing aids. That legislation insured equal access to telephone service for hard of hearing people.

In the All Channel Receiver Law of 1962, Congress mandated the inclusion of the UHF tuner in all television sets sold after April 30, 1964. Prior to that law, consumers were faced with a situation strikingly similar to this one. Consumers had to buy a special adapter to receive UHF transmissions. These adapters, like the stand alone decoder, were expensive, had reception problems and were difficult to install. All of those problems were eliminated once the UHF tuners were built into all sets. The requirement of built in UHF tuners also resulted in strengthening the UHF broadcast frequencies, gave impetus for better programming on UHF stations, and created more program choices for the viewing public. This legislation also provided a substantial public benefit since many educational stations were on the UHF band.

Congress mandated in the Communications Act of 1934 that communication services be "made available, so far as possible to all the people of the United States." With the passage of the Americans with Disabilities Act and the requirement of a nationwide telephone relay

system, we are finally after 55 years about to achieve universal telephone service for deaf people. But for many Americans we have still not achieved universal service to television. This legislation will offer that equal access.

Congress, and especially this subcommittee and the House Subcommittee on Technology and Finance, have tried to make sure that disabled Americans and those on the bottom of the socioeconomic ladder have access to the benefits of our communication system. EIA has suggested, however, that this legislation be limited to a few categories of higher priced TV sets. That approach would defeat the goal of universal service. That limitation makes it harder for those most in need to have access to the benefits of closed captioning. The EIA alternative of one model per higher priced screen size, i.e., "custom built" sets, will, like the separate stand alone decoder, cause stigma problems for consumers. Also, like the stand alone decoder, these custom built sets will be difficult to find. They will be more expensive for the consumer and the TV manufacturer since separate limited quantity processes must be used. In comparison, if the chips are put in most sets, economies of scale will drive down the cost to insignificant levels for both consumers and manufacturers. Most important, installing the chip in most sets will greatly increase the audience for closed captioning essential for market incentives to insure a self-sustaining captioning service.

There is a broad coalition of support for this legislation from the television industry, educational organizations and institutions, such as the PTA, NEA, and Literacy Volunteers of America, whose Honorary Chair is Barbara Bush, senior citizens, and consumers, including the American Association of Retired Persons and the Consumer Federation of America, and disabled Americans. For the record, I have enclosed letters of support to my statement.[1/] There is good reason for such wide support for this legislation. It stands to benefit many at an insignificant cost. I urge you to support this legislation that will provide full access to television for all Americans. Thank you.

1/ The attachments were not reproducible.

Senator INOUYE. Thank you very much, Mr. Dubow.

Are there any questions?

[No response.]

Senator INOUYE. Thank you very much, sir.

I will now call upon Mr. Rocky Stone, Executive Director, Self Help for Hard of Hearing People, Inc.

STATEMENT OF HOWARD E. "ROCKY" STONE, EXECUTIVE DIRECTOR, SELF HELP FOR HARD OF HEARING PEOPLE, INC., BETHESDA, MD

Mr. STONE. Thank you, Mr. Chairman. It is a pleasure to be here.

I noticed that when Sy talked about senior citizens, he looked at me. I think he expects me to emphasize that point a little bit today, and I will.

I am the Executive Director of Self Help for Hard of Hearing People. This is an organization that was founded ten years ago. In the first ten years of our organizational existence, more than 30,000 have joined.

We are a volunteer, educational organization, with members in all 50 of the United States. Our mission is to seek out those having hearing loss, involve them in local meetings and activities, and educate them about the problem, instruct them about detection, management, and possible prevention of further hearing loss.

We have begun to organize that very difficult constituency of hard of hearing people, and we have joined forces with the existing deaf communities to push for research into all elements of hearing loss and to raise the quality and lower the price of remedial aids.

We work to develop public and professional acceptance of the needs of hard of hearing people, fostering a climate in which we can seek appropriate alternate communications skills. SHHH urges governments at all levels to rectify existing inequities experienced by people with disabilities.

The proposed legislation under discussion today is very close to our hearts. Our members tend to be older people. A 1986 Congressional study noted that about 7 million elderly persons have significant hearing loss. Unfortunately, it is getting worse.

By the year 2000, we anticipate that 46 percent of persons 65 and older will have a hearing impairment. The National Institute on Aging expects 34.9 million Americans to be 65 and older by the year 2000.

Most of these people wish to remain active and to keep abreast of the news, and to be entertained just like everyone else. But a combination of impaired hearing, diminished sound quality of television, and voice descriptions of activities off camera make it almost impossible for them to do so.

Purchase of a telecaption decoder is not always the answer. The price of decoders remains high, and installation problems continue to defeat many older persons. Connecting the decoder to the TV is a simple matter. However, if VCR or a cable TV is used with a decoder, it is much more complicated.

I described in my written testimony some of those complications and the extra costs involved in carrying them out. But one thing I would like to mention, based on what I have heard here this morning, is that the market really is more significant and goes beyond the 2 million deaf people for whom this technology was originally devised.

Our ten years of experience has indicated to us that the technology benefits far more people than just deaf people. One of the problems with the larger market of some 20 million hard of hearing people is that people who lose their hearing are still part of the hearing culture. They do not use sign language, by and large.

The result is there is a psychological block in their minds (because of the stigma in our society concerning deafness) about buying a device for deaf people. Consequently, many of the individuals who could benefit from captioning, who are termed "hard of hearing," do not own decoders.

There is a fine line between the deaf person and the severely hard of hearing person. We are talking about 2 million deaf people and perhaps 5 million severely hearing impaired people. The latter individuals have just as much difficulty discerning conversation in speech over television perhaps as a deaf person might. The result is that captioning is a great advantage to them.

We see the existence of all of the captioning components contained internally, so that all you need to do is turn a switch, as an enormous benefit to older persons who have difficulty with technology.

More importantly, however, it will overcome the stigma. The individual who simply has to flip a switch for captioning will try it. And that individual, I assure you, will benefit from it and be very happy to have it available.

Short of that technology, most individuals who are hard of hearing and older probably will not buy decoders. The result is that I think this legislation can really assure universal access to television for the first time in our country, and over a period as short as perhaps ten years.

Decoders are also portable. But no one has any real confidence that if they carry a decoder with them, they will be able to successfully hook it up in a friend's house or in a hotel room. Many of the problems that we have of this kind are solved by people who choose to go and stay in hotels which already provide captioning, such as the Hyatt Hotels, as opposed to other hotels that do not provide captioning.

Dissemination of information in this country is always a problem. Having a decoder chip in all television sets would solve that problem.

Of crucial importance to hearing impaired persons is access to emergency information. In April, the Federal Emergency Management Agency sponsored a live teleconference which specifically addressed the emergency communication needs of hearing and speech impaired populations.

Closed captioning is a major consideration of providing emergency communications.

With Hurricane Hugo and California earthquakes, many deaf people noted the lack of closed captioning to communicate fast-breaking developments. But hard of hearing persons, many of whom do not own decoders, were left with no, or inadequate, emergency reporting. This legislation will correct situations of that sort.

I would like to mention the ADA, just as Senator Harkin did. It is possible that the regulations on public accommodations could include the requirement for provision of captioning in a whole variety of local circumstances. Those individuals who have to buy decoders for different television sets could be an enormous expense to business. But if all of the technology is contained in the television set, business is going to save considerable money in terms of trying to implement the regulations for the ADA.

On a personal note, until the advent of widespread captioning, I seldom watched television. My access to news was solely through the printed media. Today, I am amazed and grateful for my capability to benefit from and enjoy a medium from which I had previously been isolated. For those less fortunate than I, in terms of being able to lead a very active life, captioning is even more valuable, because for those people, the television set and the telephone are their only two sources to the outside world.

This bill makes good economic sense. It enhances the trend in America toward providing hearing impaired persons with the access to communications which is their right. And it will bring and keep many members of society into the mainstream by virtue of its benefits to non-hearing impaired persons.

I strongly urge you to pass this legislation as soon as possible, and I express our deep appreciation to this Committee for all the work that you have done on behalf of people with hearing impairments.

Thank you very much.

[The statement follows:]

STATEMENT OF HOWARD E. STONE, EXECUTIVE DIRECTOR, SELF HELP FOR HARD OF HEARING PEOPLE, INC.

Mr. Chairman and Committee Members:

My name is Rocky Stone and I am the founder and Executive Director of Self Help for Hard of Hearing People, known as SHHH.

As you know, we are a volunteer, educational organization with members in all fifty of the United States. Our mission is to seek out those having hearing loss, involve them in local meetings and activities, and educate them about the problem, instruct them about detection, management and possible prevention of further loss. We have organized a constituency of hard of hearing people to join forces with the existing deaf communities to push for research into all elements of hearing loss and to raise the quality and lower the price of remedial aids. We work to develop public and professional acceptance of the needs of hard of hearing people, fostering a climate in which we can seek appropriate alternative communication skills. And SHHH urges government at <u>all levels</u> to rectify existing inequities experienced by people with disabilities.

The proposed legislation under discussion today is close to our hearts. Our members tend to be older persons. A 1986 Congressional study noted that about 7 million elderly persons have significant hearing loss. Unfortunately, it is getting worse. By the year 2000, we anticipate that 46 percent of persons 65 and older will have a hearing impairment. The National Institute on Aging expects 34.9 million Americans to be 65 and older by the year 2000. Most of whom wish to remain

active, to keep abreast of the news, and to be entertained just like everyone else. A combination of impaired hearing, diminished sound quality of television, and voice descriptions of activities off camera make it almost impossible for them to do so. Purchase of a telecaption decoder is not the answer for them. The price of decoders remains high and installation problems continue to defeat many older persons. Connecting the decoder to a TV is a simple matter. However, if a VCR or cable TV is used with the decoder, the instruction manuals frequently say "Refer to cable company or qualified personnel." This is not because the process is difficult, but because there are so many variations in equipment and cable systems that any one manufacturer will not take responsibility of determining how the connections would be made. Unfortunately, many service personnel do not know how to make the connections, so the hearing impaired person is left with an inoperative system.

One of our members, an intelligent, active person at age 70 told us, "I wasted $98.00 on two servicemen trying to get my decoder #3000 hooked up. The first one couldn't figure out the hook-up with all the TV attachments. The second one got the VCR in backwards, so I could not record the captions. Finally an electronics expert who is also my neighbor, got everything straightened out. This legislation would eliminate that kind of frustration and expense.

The new decoder #4000 is portable but older persons cannot travel with decoders and have confidence that they will be able to connect the decoder to the TV in their hotel room, or friend's home. When our Board of Trustees meets, the trustees select hotels that now provide closed captioned television over those that do not.

If we look at the connection between the Americans with Disabilities Act of 1990 (ADA) and the legislation we are considering, we find some surprising results. Regulations for the ADA could include the provision of communications access (including closed captioning) for hearing impaired persons in places like hotel/motels, hospitals, senior centers, and nursing homes. Consider the cost to these establishments should they have to purchase separate decoders and install them in television sets in their establishments. Surely this legislation will benefit the private sector in its compliance with ADA.

The existence of television sets equipped with circuitry enabling us to access news, education and entertainment at the flip of a switch is of incalculable benefit. Within one decade, we will have accomplished universal access to TV for persons with hearing impairments. Although much progress has been made in the number of hours captioned on TV, this new and universal access will result in expansion of captioning in an explosive fashion. There is more.

Psycho-social problems surrounding the stigma of deafness which inhibit many persons, from buying a decoder perceived as a device for deaf people, will be overcome with an internal component in all television sets. People will try captioning. I can assure you that millions of them will like and benefit from it. Visits to relatives and friends will no longer cut the present decoder owners off from captioned TV. Their relatives and friends will have captioning too! Travel will be enhanced. I know people who will not leave home unless assured of captioning where they are going.

Dissemination of information in this vast country of our is always a problem. Having a decoder chip in all television sets will solve that problem. Of crucial importance to hearing impaired persons is access to emergency information. The Federal Emergency Management Agency (FEMA) sponsored a live teleconference in April which specifically addressed the emergency communication needs of the hearing and speech impaired population. We have had two recent emergencies which attracted national attention. Hurricane Hugo and the California earthquake. While deaf people noted the lack of closed captioning to communicate the fast breaking developments, hard of hearing persons, many of whom do not own decoders, were left with no or inadequate emergency reporting. This legislation would provide access to captioned emergency information to all hearing impaired persons who don't own decoders.

By making captioning a normal part of communications on television, we will broaden the base of its use and enable many businesses to recognize the idea of captioning as being good for business.

On a personal note, until the advent of widespread captioning, I seldom watched television. My access to news was solely through printed media. Today I am amazed and grateful at my capability to benefit from and enjoy a medium from which I have previously been isolated. For those less fortunate than I, in terms of being able to lead a very active life, captioning is even more valuable.

This bill makes good economic sense. It enhances the trend in America toward providing hearing impaired persons with the access to communications which is their right, and it will bring and keep many members of society into the mainstream by virtue of its benefits to non hearing impaired persons.

I strongly urge you to pass this legislation as soon as possible. Thank you.

Senator INOUYE. Thank you very much, Mr. Stone.

Are there any questions?

[No response.]

Senator INOUYE. I thank you, sir.

Ms. Posell, would you like to exchange seats with Mr. Dubow? Otherwise, Boston television viewers will not be able to see you.

Now may I call on Ms. Annette Posell, of The Caption Center, WGBH, Boston.

STATEMENT OF ANNETTE POSELL, MANAGER OF CORPORATE DEVELOPMENT, THE CAPTION CENTER, WGBH, BOSTON, MA

Ms. POSELL. I hope you can hear me okay. If there is a problem, please say so and I will do something, though I don't know what.

I want to thank you for listening to me this morning talking about legislation that is very, very close to my heart. I really do believe that a decoder or caption capability on every TV set has the potential to dramatically, positively impact the lives of almost everycitizen in the United States.

I am talking to you today wearing a variety of hats. I am obviously a deaf person. I am one of those people who relies on captioning to understand and enjoy television. I am one of those people who cannot understand television in a hotel, and I cannot understand it in the homes of my friends. I have to go home if I want to watch something on TV.

I am also the mother of two hearing kids, ages 12 and 15. I am sorry they are not here today. I would like them to see me do something that maybe has some influence on access for people. I am hoping they don't have to see me do this again.

People think of captioning as a service for deaf and hard of hearing people, but I want to point out that captioning makes it possible for people, all kinds of people, to watch TV and experience TV together. Most deaf people—most—have hearing family members.

I am also talking to you from an educational perspective. I have a Master's Degree in Special Education for the Deaf from Columbia University. I taught English and reading to deaf children and adults for 12 years—and I am showing my age here. For the past ten years, I have worked at The Caption Center at WGBH in Boston. We are the oldest captioning agency, a nonprofit company. I started there working on educational captioning projects for kids. Now I am Corporate Development Manager, dealing primarily with making the corporate community aware of captioning and securing their money to pay for captioning.

So, with those hats, I want to tell you that when I became deaf, I was 16 years old. That is a very social time in a person's life. It was a long time ago. I found myself very, very cut off, very suddenly, from all of the things that I had enjoyed doing with my friends. I found myself looking at television a great deal of the time. It looked like a visual thing, something that didn't require communication. But it was the most frustrating experience of my life.

I would nag my brother and ask him what was so funny on "The Honeymooners." By the time he told me, it wasn't funny anymore. I gave up.

It doesn't matter how good a lip reader you are, and people tell me I am a pretty good lip reader. It doesn't matter. You cannot make sense, it is impossible to make sense of television if you can't hear it or if it is not captioned.

Later, when I became a teacher, we brought in tapes for classroom use. Of course, we brought in captioned, educationally captioned, tapes. I found kids who were labeled inattentive, hyperactive, trouble-makers, and obviously poor readers. They could not sit still for five minutes. But with the captioned tapes, they really paid attention. They really learned.

Their test scores improved, and the conversation that resulted among the kids and between staff and the kids was phenomenal. It was really a shared experience.

When I joined The Caption Center, by that time I had two kids, two hearing kids. I felt that TV really had a claim on the kids, even though they were very little, and I was jealous that I could not take part in that. At that time, not even "Sesame Street" was captioned.

There was one captioned program for kids, called "Zoom." It came from WGBH. Most people really take for granted the concept of watching television with your kids and you talk about what you see with your kids. Well, a deaf parent with a hearing kid is really cut off from that.

I am still grateful to this day for the captions on "Zoom." The show is not on the air anymore, but for me it was a very important experience because my son was very young and it was one show that we could watch together. It happened that his favorite song came from that show. It made me understand what he was babbling about all of the time, because it was captioned.

The kids grew up with captioning. In my home, I don't turn on the sound when I watch TV. The kids, before they could read, were watching TV and not hearing TV. When the kids went to school, the teacher said to me, "Annette, your kids are phenomenal readers." I said, "Ah, they can read words, they can sound out letters like any other kid." They said, "Oh, no, no, they really can read." And they really could read. They really could read well, and they still read well. It is not because they are exceptionally bright. It is not because of anything special in our family. It think it is because they grew up reading.

I have stories from deaf friends, many stories from other deaf people, who have had the same experience. Their hearing kids learned to read before anyone even knew it. This is because—we think, though we cannot prove it—there was so much television with the reading, the association of the word with the visual.

Still, captions are—maybe this is an exaggeration—but I call it my lifeline. Because of captioning, I can partake in conversations about the news. I know about Elizabeth Taylor's health, for example. I know about President Bush having visits from important Russian people. I know what is going on locally, who is being killed in what State, et cetera.

I just came yesterday from Dallas. I was in a hotel for three days. I can't tell you what I missed. There is no captioning in the hotel. I felt very, very cut off.

Because of the captioning, I can tell my kids which programs I think it is okay for them to watch and which I don't think it is okay for them to watch. I understand the words to many songs because more and more music videos are captioned. I understand which products to buy because so many commercials are captioned.

Television really has become an instrument of information, entertainment, cultural awareness, and literacy nightly from 7:00 to 11:00 p.m. But, before 7:00 p.m. and after 11:00 p.m., forget it. There is nothing available, almost nothing available.

I remember people talking about "Saturday Night Live," the "News for the Hard of Hearing." Everybody said oh, have you seen it, have you see it? No, I haven't seen it because I can't understand it. But I heard about it from everyone else. But still that show is not captioned.

Often I can sit alone at night. I have 40 channels on my bedroom TV, a beautiful, big, TV with a decoder, with cable, with a VCR, whatever. At night, if I can't sleep, with 40 channels, most of the time I end up watching religious programming with a sign language interpreter stuck in the corner of the screen because that is the only accessible thing on late night TV.

That is really true.

The obvious need and the goal of all of us here, I hope, and for the people working in the television captioning industry is to make television fully accessible, meaning day and night, weekends, all the time, everything—to have the same capability as you have, to turn it on, to turn the channel and be able to understand everything that is there, not just a select few programs.

The only way that can happen is if every television set has the capability to show captioning. The reason for that is because the marketplace needs the stimulus of the numbers of the viewers. We have to assure the people who pay for captioning that their money is well spent. The only way we can do that is to grow the numbers. The only way we can grow the numbers is to have the decoder readily available at the push of a button.

We estimate now that captions are serving approximately 1 million people. That is 1 million of 24 million deaf and hard of hearing people in the United States. That is 1 million. But there are another 27 million people who are struggling with literacy, and that is supposedly America's number one issue. It is a big issue for improvement. There are 3 million to 4 million people learning English as a second language. We believe that captioning really can help with that.

In addition, we have 18 million kids between the grades kindergarten through third, who are learning to read, and we believe that captions can really help them, too.

When I became deaf, when I was 16, a long time ago, access was not considered a human right, especially access to telecommunications. I am really proud and amazed and I think it is great to see how many things have changed since that time. I think especially right now, with the passage of the ADA, thanks to you, all of you, and Senator Harkin, that is the most dramatic legislation so far.

But in the spirit of that law, I think it is time also to make sure that everyone has complete access to telecommunications through captioning. I really hope that this bill will pass.

Thank you very much.
[The statement follows:]

The Caption Center

Statement of Annette Posell,

Manager of Corporate Development: The Caption Center/WGBH

Mr. Chairman and members of the subcommittee: I am honored to be here today. Thank you for the opportunity to testify in support of the Television Decoder Circuity Act, a piece of legislation that is close to my heart.

I sincerely believe that the availability of captions in every television set will dramatically impact the lives of almost every citizen in America in a positive way.

My testimony today comes to you from both a personal and a professional point of view:

- As a deaf person, I rely on captions to understand and enjoy television.
- Professionally, as Manager of Corporate Development at The Caption Center, I am responsible for raising awareness about—and ultimately funds for—captioning from the corporate community.
- Before joining The Caption Center, I earned a Masters Degree in Special Education for the Deaf from Columbia University, and then spent twelve years teaching reading and English to deaf children and adults.

I would like to share some of these personal, academic, and marketing experiences with you. It was ironic that I became deaf, because I grew up in a very musical family—my father performed with the Cleveland Orchestra and my brother was with the Metropolitan Opera. The performing arts have always played an important role in my life.

When I lost my hearing, I was sixteen years old and a junior in high school—a very social time in one's life. I found myself suddenly unable to participate in activities I had always enjoyed. I was even excluded from my favorite television shows. Interrupting my brother's laughter to ask what Jackie Gleason was saying on THE HONEYMOONERS never seemed to work. I finally gave up on TV—watching it was a lesson in frustration. No matter how adept you are at lipreading, it is virtually impossible to make sense of television without sound or captions.

For many years, I refused to watch even the most visual programs on TV. I was always a step behind—I got news from the newspaper the day after it occurred, and I couldn't partake in teachers' room discussions about recent events on HILL STREET BLUES.

As a teacher, I noticed that captioning did more than just translate a program's audio into print. I saw kids who had been written off as inattentive, hyperactive underachievers—and needless to say, extremely poor readers—actually sit for long periods of time reading, understanding and enjoying programs thanks to captions. I noticed that kids picked up idioms and new vocabulary from the captions, that test scores improved, and that unexpected and important conversations resulted from the shared viewing experience.

I taught Adult Basic Education classes at night to deaf adults who could not read. They were frustrated by years of failure in the classroom and their motivation for learning was low. We put aside the standard textbooks and reading curriculum and watched captioned television instead. The students improved significantly without exception and felt terrific about themselves.

I got hooked on captioning as the most painless, entertaining and effective way for people—deaf or hearing—to improve their English and reading skills. I joined The Caption Center in 1978 as an educational consultant and was assigned the ideal job of teaching teachers how to make learning fun by using captions in the classroom.

By then, I was the parent of two hearing children and was feeling cut off by television's claim on them. Very few programs were captioned. I believe ZOOM was the only captioned children's program available when my son Jake was a toddler. Watching a TV show with a child is something most people take for granted, but believe me, to this day I am grateful for the captions on that show. It was a very special treat for us to watch ZOOM together and because of the captions, I understood the words to Jake's favorite song, "The Monster Mash."

My kids grew up with captioning. Because I don't turn the sound on when I watch, they are accustomed to reading it. It shouldn't be a surprise that they taught themselves to read long before their classmates and that they are excellent readers to this day. I have many deaf friends with similar stories: one, a gentleman from India, was surprised to find his hearing son an expert reader by age six. Nobody spoke English in their home and the majority of the family's books were written in their native Hindi dialect. Concerned for the boy's education, the parents kept the

captioned TV on almost continually and it appears that the child absorbed the English language almost by osmosis.

To this day, captions play an enormous role in my life. They let me know whether it's okay for the kids to watch THE SIMPSONS. I know the words to "Step By Step" by New Kids on the Block because they captioned their latest music video. I'm kept informed about sexual abuse, child labor laws, Gorbachev's visit with President Bush, destruction of the rain forests, and the status of Elizabeth Taylor's health because many newscasts are captioned. I learn about trends, styles, and issues in which my kids are interested thanks to captions on programs we watch together. I know which products to buy because I can read captioned TV commercials.

Television has become an accessible instrument of information, entertainment, cultural awareness and literacy nightly from 7:00 to 11:00 PM. This has contributed enormously to the quality of life for deaf and hard-of-hearing people all across the country. Although we have come a long way since PBS aired the first captioned program in 1972, there is still a long way to go. SATURDAY NIGHT LIVE had a funny skit about "News For the Hard-of-Hearing," but, like almost every show after 11 PM, it is not captioned. Daytime, too, offers little to the viewer who relies on captions and finding captions on basic cable is like looking for a needle in a haystack.

The obvious need, and the goal of all who work in the captioning industry, is to make television totally accessible regardless of day-part or type of programming. The greatest hope for achieving this goal lies in the legislation you are considering today. A mandatory built-in decoder would simultaneously make captioning more accessible and provide the necessary marketplace stimulus to ensure that eventually everything on television is closed captioned.

We estimate that captions currently serve approximately one million viewers. Passage of the Television Decoder Circuity Act would assure corporate caption funders that their sponsorship would be appreciated by every one of this nation's 24 million deaf and hard-of-hearing citizens, 27 million adults struggling with literacy, 3 to 4 million people learning English as a second language, and 18 million children learning to read in grades kindergarten through three.

This legislation would solve the greatest problems of the current decoding technology:

1. **Cost**: Many, many people who should benefit from captioning cannot afford the purchase price of an external decoder (approximately $175).
2. **Stigma**: Many people, including elderly citizens whose hearing diminishes as a natural part of the aging process, would benefit from captions if they were readily available. But because of the perceived stigma of assistive devices, these people suffer with unintelligible television rather than call attention to their hearing loss.
3. **Technical Barrier**: The decoder comes with directions, but it's fair to say that hooking it up to a VCR and cable-equipped TV set can be a nightmare. People will be much more willing to watch captions if they are available at the push of a button.
4. **Access away from home**: Built-in caption capability in every TV set will make it possible to watch television away from home—in hotel rooms, for example, and in the homes of friends and family members who are not deaf or hard-of-hearing.

Telecommunications access was not considered a human right when I became deaf in 1959. It's amazing and wonderful to witness the changes in our lives, most

notably, and with sincere gratitude to Senator Harkin and many other Senators, the passage of the Americans with Disabilities Act. In the spirit of this new law, the time is right to support the Television Decoder Circuity Act and provide full access to our nation's most pervasive communications medium. This Act will ultimately allow fuller participation in our country's cultural, political and educational experience, so much of which is transmitted and appreciated through the medium of television.

Thank you for the opportunity to address you today.

Senator INOUYE. Ms. Posell, as I stated earlier, this has been a moving experience for me. I thank you for the contribution you have made to this day. You have answered all of the questions we have.

Senator Kasten.

Senator KASTEN. Mr. Chairman, I do have one question for Ms. Posell, but I, first of all, just want to make the point that when you were 16, which was just a few years ago, I don't think our society was anywhere near as dependent upon telecommunications as we are today. CNN news, 24 hour news, things are happening all over the world. I think if anything is true, Mr. Chairman, the need for this as our communications society continues to grow is greater and greater every day. We all are becoming dependent.

I think one of the reasons democracy is breaking out all over the world is because people are learning about democracy all over the world. But the idea that our dependence upon telecommunications, as it grows, I think makes this legislation more and more important.

I would like to ask you about your experience in Boston with senior citizens. You have spoken in your testimony primarily about the deaf. But it seems to me, as I said in my statement, that there has to be a very important group of senior citizens who benefit greatly from your work.

What I am saying is that this is not a narrow, special interest issue. This is a broad issue for all of America.

I think you are probably the only captioning expert, if you will, on the panel, or on the next panel. Would you tell us a little bit about your experience in Boston with regard to senior citizen groups and others who have come to you to thank you or to explain to you how what you are doing is helping them. These are people who are now senior citizens.

Would you just tell us about that part of it.

Ms. POSELL. Sure.

I just want to point out that my work is not only in Boston. My office is based in Boston. We have another one in L.A. and another in New York. I am travelling a lot. I see a lot of senior citizens.

I have two reactions to that. First, I think especially with things like the local news, people who could hear before have a greater stake in television and information, and the need for communications may be greater. Maybe "greater" is the wrong word. Maybe it is just more necessary.

We have a lot of senior citizens who say boy, I was so frustrated and I couldn't hear the TV, and I didn't want to ask people all the time to explain it to me—I was always behind, and I got the news the next day. Suddenly, I am now with everyone else and I understand the news.

I would say it's not only the news, but that is a very, very important thing to this group, the local and national news.

There is another issue. I think other people have mentioned it, though it is not the nicest thing. It is the perceived stigma of hearing loss. If you don't understand something, if you can't keep up with something—I think Emma used the word "demeaning"—it is that. You feel left out. People look at you like oh, she doesn't understand, and they talk around you.

People are often reluctant to go out and purchase a decoder, set it up on top of the television set, and say look at me, I have a hearing loss, and I need this. They would be more anxious, more eager, to get glasses and maybe, maybe a hearing aid. But the decoder is the big one.

So when we are talking to the senior citizens, that is the other side of the picture.

Senator KASTEN. Thank you.

Thank you, Mr. Chairman.

Senator INOUYE. Thank you very much.

Senator Exon.

Senator EXON. Mr. Chairman, thank you very much. This has been a very interesting hearing. I just have one question.

I was wondering how closed captioning actually works. It is a marvelling thing that you and others have provided the leadership that you have, Ms. Posell.

I understand that in addition to prime time television shows today, many of the major sporting events are closed captioned.

For one who does not quite understand it, how is that done? Is that closed captioned simultaneously with the sportscast, or videotaped and broadcast later?

Ms. POSELL. Magic!

Senator EXON. Magic!

Ms. POSELL. Yes, magic.

Senator EXON. I want to know the secret to the magic.

Ms. POSELL. I want to say something about sports. Sports is kind of new. A lot of thanks goes to Neil Pilson, president of CBS Sports, who has a deaf son. The corporate policy at CBS is to caption all their sports programming.

The live programming, whether it is sports, news, parades, awards, Tony Awards, Grammy Awards, Miss America, it does not matter, they are all captioned the same way. I thought maybe this woman over here was doing it, too.

The system is very similar to the system, I thought, used in the courtroom, with stenographers. They are retrained. The equipment I believe is similar. They are retrained because in the courtroom,

they could type what you people are saying and record it. Then they had a chance later on to clean it up. But for the real-time captioning, they are listening to the program as it is on the air and they are transcribing it through the special computerized keyboard. But there is no clean-up time. It shows up on the screen one to five seconds after the audio.

What happens is they transcribe it into the computer and the captioned data are sent via special phone lines to the broadcast facility, NBC, CBS, or ABC, it doesn't matter. From Boston, where we do it, I believe the NCI does it in Falls Church, VA, and American Data Captioning sends its captioning out from Pittsburgh. It doesn't matter where you do it. You send it through the phone to, for example, CBS Sports. They have a smart encoder there and, boom, it goes into the video. Then the live captions scroll up three lines at the bottom of the TV screen.

Senator EXON. That is very, very interesting. You have explained the magic so that even I can partially understand it.

Ms. POSELL. When you come to Boston, we would be happy to show you.

Senator EXON. Thank you very much.

Mr. Chairman, I thank the witnesses for being here. Thank you for calling this very important hearing.

I enthusiastically support this bill, as I have sponsord legislation to help the disabled way back when I was Governor of Nebraska. I suspect that this will be moving speedily through the Committee and on to the floor.

I would just make an inquiry, Mr. Chairman. Was there a vote to report this out? We do not traditionally report bills out of Subcommittee in the Commerce Committee. Is this going to the full Committee for a vote in the near future?

Senator INOUYE. Yes, sir. I promised this to Ms. Matlin.

Senator EXON. Thank you.

Senator INOUYE. Do you want to be recorded as in favor?

Senator EXON. I certainly want to be recorded in favor, and I will be actively supporting this, not only in the full Committee but on the floor of the U.S. Senate, where I suspect we will be successful in passing it speedily.

Thank you for being here today.

Senator INOUYE. And Ms. Matlin will now send you an autographed picture.

Ms. Matlin, Ms. Samms, Mr. Dubow, Mr. Stone, and Ms. Posell, on behalf of the Committee, I thank all of you for your contribution this morning. As a result of your testimony, I believe I can assure you that this measure will leave the Senate fully supported before we leave for our August Recess.

Hopefully, by the time we adjourn, it will be on the President's desk.

Thank you all very much.

Our next panel will have, representing the Electronic Industries Association, Mr. Tom Friel; the Director of Engineering, of P.B.S., Mr. Mark Richer; the President of the National Captioning Institute, Mr. John Ball; and the Vice President of Marketing, Zenith Electronics Corporation, Mr. Bruce Huber.

May I now call on Mr. Friel.

STATEMENT OF TOM FRIEL, ELECTRONIC INDUSTRIES ASSOCIATION

Mr. FRIEL. Good morning, Mr. Chairman and Members of the Subcommittee. My name is Tom Friel, and I am Group Vice President of the Electronic Industries Association's Consumer Electronics Group. On behalf of the association and its television manufacturing member companies, I would like to take this opportunity to thank you for inviting us here today to testify before the Subcommittee.

Mr. Chairman, let me state at the very outset of my testimony this morning that my association and its members wholeheartedly endorse the goal of making television more accessible to the hearing impaired and others who stand to benefit from improved captioning technology. We do not, however, believe it is fair to impose what amounts to a regressive excise tax on all purchasers of television sets in order to benefit a small, albeit deserving, minority.

We agree with the bill's findings that "to the fullest extent made possible by technology, deaf and hearing-impaired people should have equal access to the television medium." The question I would like to raise this morning for the Subcommittee's consideration is whether mandating inclusion of decoder circuitry in every television set 13 inches or larger is the best way to go about assuring equal access to the television medium for deaf and hearing-impaired people.

There is no question but that television is a very powerful news, information, and entertainment medium in our society today. More Americans are watching more television for more reasons than has ever been the case before. Along with the rise in television viewing in this country, there has been an equally dramatic increase in factory sales of television receivers. Last year alone, more than 25 million televisions were sold in the United States, of which more than 20 million were color sets. What is even more remarkable than the number of sets sold is that their average price has actually declined over the last decade, making televisions one of the very few consumer items about which such a claim can be made.

Unfortunately, in this bill's effort to guarantee access to television for all people, we believe it unduly interferes with consumer choice and will immediately and significantly raise the price of television sets for all Americans, especially those on fixed or limited incomes.

As I just mentioned, there were more than 25 million televisions sold in the United States last year. Some were black and white sets, but, by far, the largest percentage were color sets. Some were small screen sets, under 14 inches; others were big screen, direct-view color televisions with 26 inch, 27 inch and 35 inch tubes.

More than half of all sets had wireless remote control; the others did not. While the number of sets equipped for stereo audio reception continues to grow rapidly, better than two-thirds of all sets sold last year were not equipped with this feature.

The point is, as things now stand, consumers have a choice. Consumers can choose between a small or a large set, a black and white or a color set, or one equipped with stereo audio or one with-

out. In effect, they pay for what they want, not what is dictated by law.

S. 1974, if enacted, would deny consumers the right to choose a set without built-in decoder circuitry, even if they had no desire to use the set for viewing closed captioned television. In addition, the bill will also most assuredly raise the price of television sets for everyone, without necessarily assuring deaf and hearing impaired people any greater access to captioned television than they now enjoy.

It is hard for me to say with absolute certainty exactly how much more a television set with built-in decoder circuitry will cost than one without it. When Senator Harkin introduced S. 1974, he said, and I quote: "This built-in decoder circuitry chip can be manufactured for as low as $5." If we take Senator Harkin's figure and add to that another $10 to $15 to install the chip and for other engineering and production costs, then it would be fair to assume that adding a built-in captioning feature could add somewhere in the neighborhood of $20 to the cost of manufacturing every television set 13 inches or larger sold in the United States.

We think mandating such an increase would be both unwise and unjust, and would serve only poorly the ends for which this bill has been introduced.

In the first place, such an increase would have a tremendously regressive effect on those least able to pay. Because of the bill's all-encompassing reach, consumers of limited means, who formerly paid less than $100 for a simple black and white television with no special features, will now find themselves paying at least 20 percent more for a feature they may not need and may not want. At the same time, the average cost of 19 inch color sets, now $236, will increase more than 8 percent, while that for a 30 inch color set will rise only 1 percent, even though we know that the latter tend more often to be purchased by those with much higher incomes, who can better absorb such an increase.

Furthermore, our member companies, having reviewed the information supplied by ITT regarding its proposed decoder chip, have determined that a microprocessor will be needed to make the decoder work. Microprocessors are now a standard feature on most large television sets and so could be modified at a relatively minimal cost to operate the decoder.

But, considerable engineering time may be required to make the modifications in smaller sets. In addition, it is quite likely some current feature or features would have to be deleted to accommodate the added decoder function. In the end, this would inevitably lead to higher prices for smaller television sets, placing them well beyond the financial reach of some consumers.

Mr. Chairman, that just is not fair.

Admittedly, the cost of decoders is too high. But if by trying to make closed captioned programming available to more deaf and hearing impaired people we also drive up the cost of the most popular sets, what good will this legislation have accomplished?

Our association and its member companies believe that before enacting such a broad mandate, Congress should first satisfy itself that there is not another, perhaps more equitable, way of achieving

this bill's goals without disadvantaging one group of consumers in order to satisfy the needs of another.

For example, if Congress wants to increase consumer demand for built-in decoders in televisions, might it not make more sense to begin by assuring that people with decoders or built-in decoder circuitry can watch anything they want with captions?

It seems it would do little good to require that every television be equipped to receive captioned programming if the programs viewers want to watch are not captioned.

Mr. Chairman, in our view there is considerably more that needs to be done in the programming area before Congress turns its attention to mandating decoder circuitry in television sets.

In fact, just the day after hearings on S. 4267, the House companion to S. 1974, the Congressional Research Service issued a memorandum which stated, in relevant part, "That while the amount of programming that is closed captioned has grown considerably over the past decade, most programs aired during prime time, the peak viewing period, are not captioned. The American Broadcasting Corporation (ABC) is the only known network that captions 100 percent of its prime time network schedule."

Just as Congress' efforts over the years to expand the Federal Highway System have led to sales of more and better cars, we think that by first making broadcast and cable television accessible to more people, sales of more and better decoders and decoding technology will most surely follow.

It is also very important to consider that while—and I am quoting Senator Harkin again—"many [consumers] cannot afford decoders," there are perhaps just as many deaf and hearing impaired people who cannot afford a new television set and who, without the means necessary to buy a new television set, would in no way benefit from this legislation.

Mr. Chairman, most Americans already have a television set in their home. In fact, among those Americans who do have television sets, 96 percent have color sets, and more than half have two or more color sets in use. How will those Americans who would rather not, or who have not the means to buy a new television set, be benefitted by this legislation? The plain and simple answer is they will not.

But if Congress were to expand the amount of captioned television available, deaf and hearing impaired people who have televisions but no decoder, or who have decoders but can't afford the cost of a new television set, might well find the price of both products dropping in response to increased consumer demand.

In addition, cable boxes, which are now already in more than half of all television homes, could soon become available equipped with built-in decoder circuitry, enabling millions of Americans to have access to captioned television without their first having to buy a new television set.

In sum, Mr. Chairman, we believe this legislation is, if not unnecessary, at least premature. However, should Congress nevertheless decide to act, we would strongly urge that it give some thought to exempting certain models and sizes so that those for whom the cost of a new television set is already a significant expense are not

unduly and unfairly burdened with having to pay for a feature they do not want, they do not need, and they cannot afford.

At the very least, we hope Congress will consider exempting from this legislation any set smaller than 20 inches and that it only require the captioning feature to be placed on one model for each screen size greater than 20 inches to assure consumers a choice. When you consider that well over 50 percent of all television sets sold each year are to consumers buying additional sets for their home, little in the way of additional access to the television medium for deaf and hearing impaired people would be added by requiring the decoding chip in every model in every size television set every year.

As I said at the outset of my testimony here this morning, Mr. Chairman, we have not any quarrel with the purposes this bill seeks to fulfill. Quite the contrary. Our association and its member companies have long stood at the forefront of efforts nationwide to bring deaf, hearing impaired, and other Americans with disabilities into the mainstream of our society. In fact, earlier this year, the Electronic Industries Foundation's Project With Industry, which, for the last 13 years has placed more than 8,000 Americans with disabilities into competitive employment, won the 1990 Distinguished Service Award from the President's Committee on Employment of People with Disabilities.

But we believe, as do most Americans, I think, that our efforts to remedy one wrong ought not to occasion another. We think this bill unfortunately fails that test, and we sincerely hope that, with your Subcommittee's forbearance, an accommodation will be able to be reached voluntarily that will serve this bill's purposes more effectively without harming those consumers least able to pay.

Thank you, Mr. Chairman.

Senator INOUYE. I am grateful for your concern for consumers, for the disabled, and for the poor. But how many of those people that you speak for can afford that little black box (indicating)?

Mr. FRIEL. I am not an economist, Senator. That small black box?

Senator INOUYE. The decoder box, which costs $200?

Mr. FRIEL. Senator, coming back from the consumer electronics show, which was at the beginning of this month, we did have exhibitors having those boxes on display for $99.95.

Senator INOUYE. How many of them can afford $99.95, when you tell me that people can't afford a $100 TV set?

Mr. FRIEL. Maybe I'm not understanding the question.

How many can afford the decoder box?

Senator INOUYE. How many deaf people can afford a $99.95 decoder box?

Mr. FRIEL. I don't know the answer to that question.

Senator INOUYE. You know very well that very few can afford that.

Why don't you come out and say that the important thing to you is the bottom line, the profit to your manufacturers?

Mr. FRIEL. Well, I don't think we are really talking about the profit to the manufacturer, Senator. It is the added cost going into the television which is what we are talking about. In my industry, specifically, there is very little profit. There are probably very few people in the consumer electronics business who make a profit.

Senator INOUYE. Well, I am certain that Sony, Panasonic, Toshiba, Matsushita, and all those other companies know how to make this very inexpensively. Eventually they will end up in Circuit City and places like that and they will make their profits.

I am convinced that $20 shouldn't be too much of a burden for the industry to carry.

Do you think that is too much to carry?

Mr. FRIEL. Yes, I do, Senator. When we have access ramps built for libraries for the disabled, I guess in the American way we, in fact, decide what is good public policy and we tax all Americans. But here you are asking me to respond to a proposal that taxes one specific industry, my industry, and I don't think that is very good.

Senator INOUYE. How else do you suggest we do it?

Mr. FRIEL. Well, as I proposed at the conclusion of my testimony, we are certainly not against this legislation. We are for this legislation, just as you are for this legislation.

Senator INOUYE. Well, let's pass it, then.

Mr. FRIEL. We just think that in its present form it is too broad in its application.

Senator INOUYE. And you know very well that, under the present state of the art, people are not going to closed caption programs because they know that the market is limited. Today, only 1 million people can watch that.

Mr. FRIEL. Well, Senator, I don't know why someone from NAB or someone from NCTA is not here on the panel with me. It is really a chicken and egg controversy that you describe. The Congressional Research Service indicates that there just are not that many prime time programs captioned.

Senator INOUYE. Obviously there are not that many, because there is no market for it, because people cannot afford this $200 gadget, which you say is now available for $99.95—a big bargain.

Mr. FRIEL. Well, in our industry, we have always responded to competitive challenges. I think we satisfy the market. If there is a market, we go for the market and we produce products for the market.

Senator INOUYE. How can you get a market when they can't afford to buy a decoder?

Mr. FRIEL. I don't know that affordability is the issue. I don't have an economic study that says that deaf people cannot afford a $99.95 black box.

Senator INOUYE. Well, you're telling me that consumers cannot afford a $20 extra cost.

Mr. FRIEL. No, Senator. What I indicated in my testimony, Senator, was that I thought it was unfair that we tax all consumers for a small, albeit deserving, minority.

Senator INOUYE. When I bought my TV set, I had to pay extra for gadgets that I didn't care for. You people put it on and you insisted that I buy it.

Mr. FRIEL. Well, I was not with you in your last purchase decision, Senator.

Senator INOUYE. I had no choice.

Mr. FRIEL. Well, I think our consumer electronics industry probably is full of choices. Maybe you had a salesman who did not explain all the various options available on televisions, but there are

many, many different options, and many different prices, and many different varieties, as I pointed out in my testimony. Some are stereo; some are black and white; some are color; some come with remotes; some are manual; some are portable; some are battery powered.

Senator INOUYE. I wanted remote control capability. In order to do that, I had to buy the little black gadget, and that gadget included all those extra things that I didn't need. All I needed was to fast forward, reverse, change the channel and the volume.

Mr. FRIEL. I think maybe you are confusing my industry with the cable industry.

The cable industry has a black box that they put on top of television sets, and many times they require you to have one.

Senator INOUYE. I had just gotten my cable. As you know, in Montgomery County, we just got cable, and I am the Chairman of this subcommittee.

But I got this TV set last year, and you had all these gadgets on it to change the channel.

Mr. FRIEL. Okay, a channel changing remote control device.

Senator INOUYE. It had a lot of things that I didn't need. I had to buy this instrument that was supposed to be used for a set with two pictures on it, and my set gave only one picture.

Mr. FRIEL. Can I ask the Senator why you chose that particular model or that particular set.

Senator INOUYE. Because my eyesight is not too good. I needed a big set.

Mr. FRIEL. So you bought the large screen size and it came with deluxe features. Well, then, you had a choice.

Senator INOUYE. And for that large set, I had no choice. I had to get it with stereo. I didn't care for stereo.

Mr. FRIEL. Well, I guess we really don't have all the options all the time. But we, in fact, have adhered consistently to choice and to consumer value and to consumer benefit.

Senator INOUYE. We are constantly called upon by our industries to purchase items that we don't need. This is not just your industry, it is for all other industries. Should we put in a law that says you cannot do that?

Mr. FRIEL. Well, not certainly here in America.

Senator INOUYE. Have you purchased an automobile recently?

Mr. FRIEL. No, I really have not. The last one I purchased was in 1983.

Senator INOUYE. Well, you now have no choice. You have to buy that package, whether you like it or not. The only choice you may have would be the seat cover and the color of the car.

Mr. FRIEL. I'm sure the Senator is correct. But I cannot speak for the automobile industry. I know that in the consumer electronics industry, it is full of choices.

Senator INOUYE. Senator Kasten.

Senator KASTEN. Mr. Friel, I want to refer to page 3 of your testimony, in which you say that, "In addition, the bill will also most assuredly raise the price of television sets for everyone, without necessarily assuring deaf and hearing impaired people any greater access to captioned television than they now enjoy.

I don't understand that statement. It seems to me that the access which they now have is very limited and the reason for this bill is because we are trying to increase the access. And if every television sold in the United States of America that is over 13 inches wide, starting in 1992, had the closed caption ability, it certainly would increase the access for hearing impaired people to captioned television.

Right now, their access is limited by cost because only a very few people are able to afford the device for closed captioning, and it is also limited, it seems to me, by location, which I did not understand, frankly, until I listened to the earlier part of this testimony.

An awful lot of us just kind of take for granted the fact that a lot of the information we get from television is information that we get from televisions that are not in our own houses, whether it is televisions in the office, televisions in a hotel, televisions at a friend's house, or wherever.

On page 3, you say that we would not necessarily assure deaf and hearing impaired people greater access by the legislation, S. 1974. It just does not make sense to me. Clearly, it would give them greater access.

Mr. FRIEL. Well, it would be one-half the equation, Senator. We, in fact, then would have a television set that is capable of receiving closed captioned transmissions. But your own Congressional Research Service indicates that very little in prime time programming, or any programming, is available in the closed captioned format.

Senator KASTEN. I understand that. But let's just say there is only one program, to make your point. There is only one program, but deaf and hearing impaired people may want to watch that program somewhere other than in their own home. And if this little device were in all television sets, they would have greater access to even that one program, because they would be able to be watching it at their friend's house, at their neighbor's house, at the office, wherever.

Now there is more than one program so equipped. But I am just trying to make your point or give you all the benefit of the doubt. Clearly, this whole bill is about greater access.

The other half of it is how much programming is closed captioned, and that is a whole other question. Maybe some day we are going to be here trying to create incentives for the television producers to provide more closed captioning. I don't know. But the point of this legislation today is to give them more access.

I think that your statement on page 3 is simply wrong.

Mr. FRIEL. Well, in your limited example, I would say that you could couch it that way. But I stand by my testimony, that, in fact, I think this does not give you access because you have only one-half of the equation. You have an automobile in your driveway with no gasoline to go.

And, as Ms. Posell pointed out in her testimony, she is with WGBH. She has VCR, she has cable, and she has a television, and she winds up watching religious programming at night because that is the only closed captioning at that time of night.

Senator KASTEN. But she would have greater access to the religious programming if this bill passed, as desirable or undesirable as that might be.

My point is that this bill is about access, and you are wrong when you say that it would not give deaf and hearing impaired people any greater access. It would give them greater access to a limited market, to a limited variety. But it would clearly give them greater access.

Let me just ask you another question.

We have been struggling, and I understand that some other legislation has been suggested with regard to one model in each classification of television set, that the manufacturer would maybe manufacture three, four, or five different 13 inch models and one model would be equipped for closed captioning.

Is this supported by your industry or are you opposed to any of these mandates? I want to understand the position that you all are taking now.

Mr. FRIEL. We indicate that we think this legislation is unfair and probably at best premature. However, our industry is prepared to sit down and agree that one model per screen size in sets above 20 inches is fair. That is like giving the option to Senator Inouye that he can have a large screen.

Here he has to buy a large screen, so he moved up in a pricing scale to get to the set that he needed to buy. With the deaf and hearing impaired, if they needed to buy a set with this option, you have already heard testimony that it will probably cost some little amount in a large set. I indicated in my testimony that for a 30 inch set, it is 1 percent. But if you added $20 to a black and white television that retails for $100, that is a 20 percent increase.

Senator KASTEN. I just want to say, Mr. Chairman, with regard to this witness' testimony, I agree with much of it in which he talks about the insight of the Congressional Research Service and others, in terms of the lack of closed captioned programs.

But I think it is important to recognize that whatever level it is at now, it is higher today than it was five years ago. And it seems to me, with all the different kinds of efforts that we are making in our society now, the Americans for Disabilities Act being passed by both the House and the Senate and it will be signed by the President, it seems to me that we are going to see more and more closed captioning, whether it is prime time or not prime time, religious programming or sports. And it is not a matter of whether, Mr. Chairman, this legislation is good. It is just a question of when we are going to do it.

It seems to me that we ought to do it sooner, rather than later. It is going to come. If it means a slight increase in the cost of a television, I think the people of the United States of America are going to be willing to pay for it.

As we make more and more of these and it becomes just another part of the set, I think that the cost is going to become lower and lower.

Thank you, Mr. Chairman.

Senator INOUYE. Thank you.

I think the record should show before we proceed with the other witnesses that all prime time on ABC is closed captioned; and most

of prime time on NBC and CBS is captioned. Number two, it is true that very few other programs are now being closed captioned. But with greater accessibility to the millions of those who are not able to watch closed captioned, if you increase the market of viewership, you will have more advertising, and with more advertising, you will have more closed captioning. That is the way our economy works.

As long as we maintain the present system, why should some advertiser advertise for deaf people who are not going to be watching? But with closed captioning, they will be watching. So, this will help the economy, and I think you should pass the word on to your membership that under this system they will continue to make good money, believe me.

Mr. Richer.

STATEMENT OF MARK S. RICHER, DIRECTOR OF ENGINEERING, PUBLIC BROADCASTING SERVICE, ALEXANDRIA, VA

Mr. RICHER. Mr. Chairman, Senator Kasten, my name is Mark Richer, and I am Director of Engineering for the Public Broadcasting Service.

Thank you for inviting me to testify on S. 1974, a bill that PBS strongly supports. PBS is a nonprofit, membership organization that provides program distribution, interconnection, and related services to America's public television stations.

I have personally been involved with both television engineering and captioning for the past 15 years, including the original development of the Line 21 closed captioning system. One of the foundations of our Nation's telecommunications policy is our commitment to the principle that all Americans should have access to the intellectual, cultural, and entertainment worlds that television brings.

As my written testimony describes in greater detail, S. 1974 is consistent with Congress' enduring commitment to universal access to television, a commitment that is specifically reflected in many of the provisions of the Public Broadcasting Act.

Because captioning fits so well with our public service mission, PBS has long played a leadership role in regard to program captioning, both in developing the technology and increasing the availability of captioned programs.

PBS was, in fact, the primary developer of the Line 21 closed captioning system.

PBS also plays a lead role in stimulating the production of captioned programming. At present, all of our children's programming, including "Sesame Street" and "Mr. Rogers," and virtually all of our prime time programming, including "Masterpiece Theater," and "Nova," is captioned. Because it will dramatically broaden access to the Line 21 closed captioning system, S. 1974 will immeasurably assist the hearing impaired, the non-English speaking, and those improving their skills reading English. It should be noted that, in addition to providing captioning, the Line 21 system is also being utilized for such services as distribution of agricultural and weather information to farmers.

PBS has concluded that all of the benefits of this legislation can be achieved in a highly cost effective manner. Our conclusion is

based on review of two different captioning decoder integrated circuit designs. These two design approaches offer receiver manufacturers flexibility.

The first design incorporates an internal command processor to control the decoding and display functions. This design, while usable in all types of television receivers, would especially lend itself to integration in receivers at the very low end of the market, which do not have any type of microprocessor or microcontroller chip.

The second design that we have reviewed does require an external microcontroller chip. However, this is a common part in modern television receivers. It is typically utilized for electronic tuning and other control functions. This second chip design also provides an on-screen display feature. It can therefore eliminate a part that would have been necessary to provide this increasingly common function.

We believe that the passage of this legislation is likely to stimulate other, low cost, design approaches.

The initial cost to the consumer for integrating caption decoder circuitry into new TV receivers will likely be less than $10 per receiver. It is also likely that the additional cost of this circuitry will quickly decrease as its functions become integrated with other functions of the TV receiver.

The major cost components of a TV are the picture tube, the power supply, cabinet, and tuner assembly. Signal processing circuitry in general is a relatively low cost element, and, therefore, the additional cost to implement caption decoder circuitry will be negligible. This will certainly be true if all TV receivers 13 inches and larger are required to incorporate caption decoder circuitry, since the key to low cost is volume production.

To summarize, PBS is proud of its role, both in the development of closed captioning technology and in providing captioned programs for the benefit of the hearing impaired and others.

We believe that the cost of implementing caption decoding circuitry will be minimal and, therefore, we strongly support this legislation.

Thank you.

[The statement follows:]

STATEMENT OF MARK S. RICHER
DIRECTOR OF ENGINEERING
PUBLIC BROADCASTING SERVICE (PBS)
ON S. 1974
THE TELEVISION DECODER CIRCUITRY ACT OF 1990
SUBCOMMITTEE ON COMMUNICATIONS
COMMITTEE ON COMMERCE, SCIENCE AND TRANSPORTATION
UNITED STATES SENATE
JUNE 20, 1990

Mr. Chairman and members of the Committee, my name is Mark Richer and I am Director of Engineering for the Public Broadcasting Service -- PBS. Thank you for inviting me to testify on S. 1974. As you know, this legislation would require new television sets with screens thirteen inches or larger to be equipped with circuitry necessary to display closed captioning. I want to urge you not to turn your backs on this remarkable opportunity to expand the benefits of television for the hearing-impaired, for the elderly, for both children and adults who are learning to read, and for those learning English as a second language.

Let me first provide some background on PBS. It is the nonprofit membership organization that provides program distribution, interconnection, promotion and related services to America's public television stations. Every day we transmit programs such as SESAME STREET, THE MACNEIL/LEHRER NEWSHOUR and MASTERPIECE THEATER to 337 public television stations in all fifty states, Puerto Rico and the Virgin Islands.

And just some very brief background on myself: I have personally been involved with both television engineering and captioning for the past 15 years. In addition to working on the original development of the closed captioning system now used by the television industry, I have subsequently been responsible for developing other advanced data communications systems utilizing the unused portions of the television signal.

One of the foundations of our nation's telecommunications policy is our commitment to the principle that all Americans should have access to the intellectual, cultural, and entertainment worlds that television brings. And when Congress enacted the Public Broadcasting Act in 1967, it explicitly stated:

> It furthers the general welfare to encourage public telecommunications services which . . . will constitute an expression of diversity and excellence, and which will constitute a source of alternative telecommunications services for all the citizens of the Nation . . . it is in the public interest to encourage the development of programming . . . that addresses the needs of unserved and underserved audiences, particularly children and minorities . . . . (47 U.S.C. 396(a)(5) and (6)) (Emphasis added.)

Captioning furthers these goals in several respects. Most obviously, it addresses the needs of the 24 million previously unserved Americans who are hearing-impaired. In addition, because closed captioning demonstrably assists children and older

Americans who are learning to read, PBS feels that support of this technology is consistent with our general educational mission. In a time of increasing national need to become more competitive in the global marketplace, that benefit is laudable in itself. Finally, the captioning technology also serves another traditionally underserved group: those who are learning English as a second language.

Because this technology assists so well our public service mission, PBS has long played a leadership role in regard to program captioning -- both in developing the technology and in increasing the availability of captioned programming. PBS was the primary developer of the "Line 21" closed captioning system. Using a concept first proposed by the National Bureau of Standards, and displayed in an experimental transmission on ABC, PBS developed and demonstrated the feasibility of closed captioning technology. As a result, PBS received funding from the HEW Office of Education to further evaluate the concept, and subsequently to develop all the equipment and techniques necessary to implement a closed captioning service. In 1979, PBS shared an Emmy award for outstanding achievement in engineering for the development of the closed captioning system.

PBS also plays a lead role in stimulating the production of captioned programming. At present, all of our children's

programming, and virtually all of our prime-time programming, is captioned. One of the line items in our budget is funding earmarked to help producers caption programming.

Because it will dramatically broaden access to the Line 21 captioning system, S. 1974 will immeasurably assist the groups mentioned above -- the hearing-impaired, the non-English-speaking, and those improving their skills reading English. It should also be noted that in addition to providing captioning, the Line 21 system is also being utilized for distribution of agricultural and weather information to farmers. Newswire and stock information services are also being transmitted. Receivers with Line 21 decoders will be able to take advantage of these services. We expect that if S. 1974 is enacted, other new national and local services will be implemented as well.

PBS has concluded that all the benefits of this legislation, described above, can be achieved in a highly cost-effective manner. This is particularly so when the costs are compared with today's captioning decoders, which cost the consumer in the neighborhood of $200 -- a difficult burden often placed on those who can least afford it. Our conclusion is based on review of two different captioning decoder integrated circuit or "chip" designs. While the two design approaches differ to some degree, I believe that these differences offer receiver manufacturers desirable flexibility.

The first design incorporates an internal command processor to control the decoding and display functions. This design, while usable in all types of television receivers, would especially lend itself to integration in receivers at the very low end of the market which do not have any type of microprocessor or microcontroller chip.

The second design that we have reviewed does require an external microcontroller chip. However, this is a common part in modern television receivers. It is typically utilized for electronic tuning and other control functions. This second chip design also provides an on-screen display (OSD) feature. It can therefore eliminate a part that would have been necessary to provide this increasingly common function.

If this legislation is adopted, it is likely that additional design approaches will be developed that will provide other perhaps lower-cost options for manufacturers.

At most, the initial cost for integrating caption decoding circuitry into new TV receivers should be less than $15, and more likely less than $10, per receiver. It is also likely that the additional cost of this circuitry will quickly decrease as its functions become integrated with other functions of the TV

receiver. The major cost components of a television receiver are the picture tube, power supply, cabinet and tuner assembly. Signal processing circuitry in general is a relatively low cost element, and therefore the additional cost to implement caption decoder circuitry will be negligible. This will certainly be true if all TV receivers thirteen inches and larger are required to incorporate caption decoder circuitry, since the key to low cost is volume production.

To summarize, PBS is proud of its role both in the development of closed captioning technology and in providing captioned programs for the benefit of the hearing-impaired and others; we believe that progress in this area advances significant policy goals. Because these goals will be greatly furthered by the Television Decoder Circuitry Act, PBS strongly supports this legislation. Thank you.

Senator INOUYE. I thank you very much. I think you had better get together with the electronics industries. You say the projected cost per TV receiver will be $10 and they say something else.

Mr. RICHER. I think a lot of that will depend on the profit margin that is added to the circuitry, Senator.

Senator INOUYE. Senator Kasten.

Senator KASTEN. Mr. Chairman, I just want to reemphasize one point that the witness has made on page 5.

You also said it in your spoken testimony.

If this legislation is adopted, it is likely that additional design approaches will be developed that will provide other, perhaps lower cost options, for manufacturers. I really believe that is true; that when we start opening up this market, there are going to be people who say all right, here is a market, here is an opportunity, and American competitiveness and ingenuity are going to jump in. We are going to see competition; we are going to see people competing, to make an efficient, low cost product. And I think it also might have the result—I would hope it does—of developing different kinds of decoders for existing television sets as well.

This legislation deals only with new sets that are going to be sold in the U.S. after 1992. My sense is, though, that if this legislation passes, we are going to see an opening up for a market for people who are going to make decoders that are going to fit sets that were made before 1992, because a market will start to develop, and that we not only will be working with the new sets, but with some of the existing sets.

I hope that is the case. But I particularly wanted to reemphasize that one statement that you made in your testimony because I think it is very important.

Thank you, Mr. Chairman.

Senator INOUYE. Thank you.

May I now call on Mr. Ball.

STATEMENT OF JOHN E. D. BALL, PRESIDENT, NATIONAL CAPTIONING INSTITUTE, FALLS CHURCH, VA

Mr. BALL. Thank you, Mr. Chairman.

Good morning. I appreciate this opportunity. I have submitted written testimony, so I won't repeat it.

I would like, Mr. Chairman, regarding the discussion that has gone on previously about programming, to say that there is a one page document that is circulating—I guess it is available for the press and others who are interested—which is a very comprehensive listing of all of the kinds of programming that is available with captions on both network television, public television, local news, syndication, cable.

I request that that may be made a part of the record because I have to question some of the facts from the Electronic Industries Association.

First of all, all of the networks provide access to prime time television. All of the networks provide access to news programming, sports, children's programming, and many morning shows and some late evening shows. As Mr. Richer said, Public Television also provides lots of access.

A growing number of local stations are now providing access, as is cable, pay cable, Home Box Office, Showtime, home videos. Many hundreds of home video titles are captioned. Thousands of commercials are captioned.

We have a situation, essentially, Mr. Chairman, where it is like IBM trying to sell software where there is no hardware. There are three elements to any viable service like captioning. First, there has to be an audience, and you have had eloquent testimony from Ms. Marlee Matlin and others today. We have been in the captioning business since 1980, and I can assure you that we have received thousands of letters and testimonials regarding the benefits that captioning brings to deaf people and hard of hearing people, and the educational value, not only to deaf children, but to many others as well.

There is no question, therefore, that captioning is a boon and a godsend to deaf people and hard of hearing people. The facts are available from the National Institutes of Health and elsewhere as well as surveys that we have done ourselves regarding that audience and the potential audience size.

The second element in the provision of a viable service is the cooperation of the software suppliers. In this case, we are talking of the television industry, the networks, cable and others that I have referred to.

Despite the lack of hardware, we have seen an encouraging growth of their commitment since 1980. It is only this past prime time season that we have seen all of the three networks provide

access to their prime time programming. It is only within the last several years that we have seen access to sports, news, and other programming on a large scale.

The big missing ingredient is the hardware. The technology took almost ten years to develop, as Mark Richer pointed out, back in Public Television and elsewhere in the 1970s. Sad to relate, we have been the only company, the only entity in North America, including Canada, that has taken on what has been a burden in terms of developing the technology that the consumer uses.

The bill that is being proposed will open up captioning to many millions of people by virtue of the fact that you are essentially reducing the price of that little box from about $160 to, we would argue, less than $5. That is quite a saving.

The EIA comment about decoders being available for $99—well, we can't make them for $99—so that has to be in error. The lowest price that that sells for through Sears and elsewhere is $180. Then the government gives us a $20 rebate, so that the deaf person can send us the receipt, and the proof of purchase, and we will send them a $20 rebate. So that unit costs $160. We are rather proud of it. It has come down, in four or five years, from $280 to $160.

You are looking at an electronic industry in some respects right there, on that TV stand (indicating). We have a TV set that is probably costing $300 or $400, and then our little unit costs close to $200, and that VCR maybe costs another $300 or $400. You are looking at $1,000 worth of hardware there.

As you pointed out, Mr. Chairman, we don't have any choice when we go to an electronics store and buy one of these pieces in that each of them, by necessity, has to come with a tuner. The tuner is virtually useless in 70 percent of all American homes. The cost of turner materials is about $10 or $12, twice as much as this chip (indicating); 70 to 80 percent, I would say closer to 80 percent, of all homes have at least one tuner that is redundant and is not used.

As the EIA study last year pointed out, I think something like 70 percent of all TV sets sold today come with a remote control unit.

If you buy a VCR—and 70 percent of all homes have VCRs—or if you subscriber to cable—and 60 percent of all homes are on cable—that VCR you bought is redundant, a point that I think you were getting to, Mr. Chairman.

I have a VCR with a remote that I never use. I have a cable box with a remote that I sometimes use. I have a TV set with a remote that I never use.

In fact, when I tried to hook up my equipment like this (indicating) in my home, my wife almost refused to switch the TV on because the wrong channels come on, the volume is not right, and so on and so forth.

That is the situation that you now add to when you add a decorder, and it is on the order of magnitude and complexity that we give to deaf people in this country.

If I could just take a minute and turn this TV apparatus around for you, I would like to show you something.

Those wires, Mr. Chairman, are not a very pleasant sight, and if one of these cables were to fall off, you would probably need some electronic engineer to come and fix it.

That is what is typical in most American homes, as I have said, because of cable and VCR penetration. When you throw in our box, you then have four boxes.

Imagine a deaf person who does not have a TDD or a local store that does not have a TDD calling up or trying to call up and ask how to hook up the TeleCaption unit.

As we have found, it is a disaster. We provide 800 number help. We have a little booklet that comes with this decorder that I think offers, in about ten pages, eight different configurations for the cable/VCR, and so on.

This bill is going to cure all of that. It is not going to cure the ills of hooking up the cable and the VCR. But for deaf people, it is going to give them a button. That button, by being on all television sets, is going to be a button that we know will be used by many others.

We have just recently completed a very authoritative study up in Massachusetts with Asian-American hearing children. The goal of the study was to test the incidental learning of these students when exposed to captioned television. The results are very exciting.

As we indicate in our testimony, there are about 20 million people for whom English is a second language in this country, including Hispanic-Americans, Asian-Americans, and so on.

Last year, without any marketing from us, 50 percent of these little boxes were bought by people wanting to learn English as a second language. We are now producing the little pamphlets that go with the decoder in Spanish, Korean, Chinese, Japanese. We are also proud to say that we are probably one of the few companies that is selling electronic television-related hardware to the Japanese. The little box that goes inside the decoder is now being purchased by a Japanese company. The Japanese are buying the technology. This is an all-American made little box, with two chips in it. One chip is made for us by Sierra, another made by Motorola. The Japanese are using this in Japan because the demand in Japan to learn English is overwhelming. If we had problems with competition from the Japanese in terms of marketing, we have not seen anything yet, because the amount of Japanese people learning English is just phenomenal, and they are using captioning.

Nobody told them to do that, now. They buy American movies, with captions, and they take them home and they use this little box (indicating), and they learn English.

So the benefits go way beyond deaf people. On the subject of access, to my knowledge—and I have been with the National Captioning Institute since its inception back in 1980—I cannot recall much, if any, inquiry from the Electronic Industries Association about the accessibility that captioning was providing deaf people.

You have heard testimony from deaf people. We have plenty of support letters and testimonials to that effect. Our experience in that ten years is that there is no question that access is increasing because of captioned television, and we will have a dramatic increase as a result of this bill being passed.

We are selling these units now at the rate of about 75,000 or 80,000 units per year. Someone else mentioned the number of homes that have access to captioned television is less than 300,000.

The passage of this bill will mean that many homes, some 20 million a year, will see television with captions for the first time. Although we have been in the business for ten years, we are constantly coming across people who have never seen captioned television. This bill will provide for the delivery of captioned television to all 92 million homes over a period of four or five years.

I agree with EIA that we do not expect low income deaf people to run out and buy a TV set costing $300 because it has a decoder. But deaf people, like the rest of us, buy TVs. In fact, Marlee Matlin told us last night that she has four TV sets. She may not be low income, but she is deaf, and she has four TV sets in her home. The point is that deaf people do watch television, as you heard from Ms. Posell. Deaf people have watched television as long as you and I have. They will always watch television, with or without captions. They enjoy and understand television now because of captioning, and with this bill being passed, when they come to the point of buying a new TV set, they will receive captions.

I think, in light of the technologies that the rest of us enjoy, like stereo, teletext, and other kinds of technologies that are evolving and developing, I think it is about time that deaf people got their "bonus," if you like, and that we allow them to be part of our society in the way that Marlee Matlin and others have testified today.

One final comment on the price. The incremental cost I think we now all agree is minimal. The EIA and others have indicated this. And, of course, when one looks at 20 million TV sets, no matter how minimal that is, you can multiply the dollar figure by 20 million and it comes out to a big figure.

But, as I pointed out, we pay big dollars for a lot of equipment currently in our TV sets. The ingenuity of engineering types that design television sets is clear. It is on the record by EIA that, despite the introduction of remote control, stereo, teletext, audio/video inputs/outputs, cable tuning—all of these things have been added to our television sets in the last ten years—the cost of the TV set is lower now.

As I have read the Zenith testimony, they are already suggesting ways in which you can integrate this technology into a TV set at minimal cost. Within a year to two years, just as today we do not know how much we pay for UHF/VHF tuning, and Congress had to act on that some years ago, people will not know the negligible cost associated with captioning.

By this time, I think most people will have come to recognize that captioning is not just for deaf people, but is for many other people as well.

I can assure you the software suppliers are getting a little tired with our rather pathetic efforts to get this into deaf homes. We can't see any alternative but this bill, Mr. Chairman.

Thank you for this opportunity.

[The statement follows:]

TESTIMONY OF JOHN E. D. BALL
PRESIDENT, NATIONAL CAPTIONING INSTITUTE

before the Senate Commerce Subcommittee
on Communications

June 20, 1990

Mr. Chairman, my name is John Ball. I am the President of the National Captioning Institute. Thank you for inviting me here today to testify in support of S. 1974, the Television Decoder Circuitry Act.

My background and education, Mr. Chairman, is in television engineering. Before joining NCI in 1980, I was the Vice President of Engineering for the Public Broadcasting Service (PBS). Among my responsibilities at PBS was overseeing the development of the closed-captioning technology. Accordingly, I am very familiar with the technical and other aspects of the captioning service.

Decoder Sales and Technology

The non-profit National Captioning Institute (NCI) was created 10 years ago with start-up funds provided by Congress through the Department of Education. NCI's primary mission was to provide captioning services to the television industry, i.e., networks, television program producers, advertisers and others, to caption a variety of programs for the millions of Americans who are deaf or hard of hearing.

In 1985, it became necessary for NCI to extend its mission into the development, manufacturing and distribution of the TeleCaption decoder, the device which people must purchase in order to receive the captioning service. Since that time, NCI has taken the technology through four generations of television set-top units and with assistance from the Department of Education, in the form of subsidies and rebates, reduced the cost of the decoder to the consumer from $280 in 1985 to less than $160 today.

Since NCI became directly involved in the manufacturing of decoders, it has expanded the retail distribution from Sears only in 1985 (primarily catalog sales) to J.C. Penney and Service Merchandise plus over a thousand retail outlets nationwide. With each succeeding model, the TeleCaption decoder has become smaller, lighter and kept technologically current. The unique circuitry in the decoder, the decoder module, has been reduced in size and complexity from 11 integrated circuit (IC) chips to just 2 chips in our current unit, the TeleCaption 4000.

Through these efforts, decoder sales have increased steadily from a mere 13,000 units sold in 1985 to a projected 75,000 units this year, and cumulative sales have reached the 300,000 level. This reflects an investment of over $60 million by consumers.

A major factor that has contributed to the increased decoder sales is the steady increase in the volume of captioned TV programs provided by the networks, cable television, home video distributors and more recently by some local TV stations.

When the TeleCaption I was first introduced in 1980, only 16 hours per week of television were captioned. Today, over 200 hours are captioned on the networks and public broadcasting by NCI and others. Captioned programs include all prime-time television, evening network news, morning news programs, children's programming, sporting events, top-rated syndicated programs, such as "The Oprah Winfrey Show", "Jeopardy", "Wheel of Fortune", and most programs offered by public television stations. An additional 170 hours of programs are available every week on basic and pay cable TV services. Hundreds of movies are also available through the home video stores.

In spite of this progress, many in the television industry are hesitant to increase their commitment to captioning due to the small audience that is reached by the service. We firmly believe that once every television is equipped with the captioning circuitry, the television industry will have every incentive to caption virtually all programming.

Who Benefits from Captioning?

While captioning began as a service for deaf and hard of hearing people, it quickly became apparent that many other groups could also benefit from it.

Research studies as well as decoder sales demonstrate that the elderly, those learning English as a second language, students, and others, benefit from captioned television.

Elderly: Almost forty percent of America's expanding elderly population suffer from some degree of hearing loss. Research has shown that as an individual's hearing deteriorates, communication with others decline and isolation increases.

Captioned television clearly alleviates this and helps keep people informed of the world around them. (By the year 2000, there will be over 11 million people over the age of 65 who suffer from a significant hearing loss.)

A study conducted by Western Oregon State College in nursing homes in Oregon, Washington, Alaska, Montana, and Idaho, showed that after being exposed to captioned television, hard of hearing residents interacted more with each other and participated more in communal activities.

People Learning English as a Second Language: Half of all decoders sold last year were purchased by people learning English as a second language. There are over 20 million people in the United States who could benefit from captioning in this way.

Students: Research and numerous testimonals from parents have shown that children who have been regularly exposed to captioned television often have better reading skills than their peers. There are 18 million students in kindergarten through third grade in the United States who could benefit from the captioning service.

Adult illiterates: This group, estimated to be about 27 million people, could also benefit from captioning.

In total, we estimate that at least one of every four people could benefit from captioned television.

Why is Legislation Necessary

While decoder sales have increased significantly in the last five years, the captioning service still reaches only a small percentage of the 92 million television households in America. In order to attract an audience large enough to support the captioning service on an economically-viable basis, the decoder circuitry must be built into new televisions. NCI believes a government mandate is absolutely essential because the highly competitive nature of the television manufacturing industry has and will prevent one or several manufacturers from including such technology in their TV sets while others do not.

The passage of the Television Decoder Circuitry Act is essential to the captioning service for several reasons:

o **To protect the captioning technology and consumer investment from future technologies which may be incompatible.** The consumer investment in the captioning technology is estimated to be in excess of $60 million and is expected to reach $80 million by the end of 1991. This investment is in jeopardy every time new TV scrambling or TV videocassette anti-duplicating technology is proposed. The captioning service is much too important to be constantly at risk in this way.

Captioning has been all but ignored by those working on high definition television (HDTV) development. Making the decoder circuitry an integral part of the television will correct this.

o **To ensure the continuation and encourage the growth of the captioning service.** Audience size is the critical factor in the television business. Programmers have made a substantial commitment to captioning despite the small audience size. Requiring all televisions to be manufactured with the decoding circuitry will dramatically increase the potential viewing audience and thereby ensure the continued financial support of the service by the television program providers.

Impact of Legislation

Decoder circuitry can be added to televisions during manufacture at a very low cost. Last October, NCI awarded ITT a $1 million contract to develop a decoder that would be contained in a single IC chip and which would cost television manufacturers no more than $5.

The passage of this legislation will lead to the inclusion of the decoding technology in about 20 million televisions annually. This demand will drop the price of the chip to about $3.

A recent study by the Electronics Industry Association (EIA) estimates that about 70% of all color televisions have microprocessors and on-screen display capability. The NCI decoder chip can perform on-screen display functions. The decoder could, therefore, replace the on-screen display chip, which costs about $2. Thus, the cost of adding captioning circuitry to most color sets would be $1. Additional peripheral circuitry and connectors are estimated to cost $1.30, for a total net cost of $2.30.

For low-cost televisions that do not have a microprocessor, the insertion of a simple microprocessor costing no more than $1 will make the decoding chip fully functional. The cost buildup for these sets would be $3 for the decoder chip, $1.30 in peripherals, and $1 for a microprocessor, for a total of $5.30.

In its recent testimony before the House Energy and Commerce Subcommittee on Telecommunications and Finance, the EIA stated that "the average price (of televisions) has actually declined over the last decade." This has occurred even though the number of features offered to consumers has increased considerably. Many of these features, such as a stereo and remote control are much more expensive than the decoding circuitry, yet these costs have not been passed on to consumers. We believe that this will also be the case when the captioning feature is added to every television sold in the United States.

Perhaps the captioning feature will not be used by all consumers, but there are already many features on existing televisions, such as the cable-ready tuning and remote controls, that consumers pay for, yet do not use. Similarly, deaf people do not use their TV loudspeakers let alone the stereo capability that is a standard feature in many TV sets manufactured today.

Response to EIA "Compromise" Proposal

As a "compromise", the EIA has proposed putting the decoder chip in only one model per screen size. Such a plan will not work.

First of all, TV manufacturers will lose the economies of scale if they include the circuitry only in selected models. As a result, the cost to manufacture those TVs will be much higher and consumers will pay significantly more for the captioning feature.

Secondly, placing the chip only in selected models will create confusion among distributors, wholesalers, retailers, and consumers. Even if manufacturers are required to produce one model per screen size, there is no guarantee that retailers and wholesalers will offer those models, or an adequate selection of those models, to the consumer.

Thirdly, the concept of a "deaf" model of television is demeaning. Deaf and hard of hearing people, as well as other potential users of captioned television should be given the opportunity to have the full range of other features available in televisions.

Lastly, the TV set manufacturers would have absolutely no incentive to keep down the price of the "deaf" model TV, resulting in higher prices and lower sales. Thus, the intent of Congress would be thwarted and the TV manufacturers would have every justification in the near future to request the elimination of this requirement entirely because of perceived low demand.

The only way to ensure that the captioned television service is accessible to the tens of millions of potential users in the United States is to include the necessary circuitry in every television. There is no compromise solution that will work.

Conclusion

Requiring manufacturers to include decoder circuitry in every television sold in the United States is the most cost-effective and easiest way to put the captioning service into the millions of households that are not yet benefitting from the service. This will allow all deaf, hard of hearing people, and other users access to captioned television no matter where they are -- at home, in a hotel or at a friend's home. The enactment of this legislation will also trigger the provision of more captioned programming.

Based on our 10 years of experience, NCI believes that there is no alternative to this legislation. It is good policy and serves the public interest.

Congress was instrumental in the creation of the National Captioning Institute and the captioning service which have provided deaf and hard of hearing people with access to our nation's television services. This legislation is a logical next step toward making the captioning service independent of Federal funding support in the future. Enactment of this legislation will not in any sense be a regressive step. Rather it will be a progressive step towards making handicapped people truly emancipated.

Mr. Chairman, thank you for the opportunity to testify before your subcommittee this morning. I look forward to answering any questions you may have.

CLOSED CAPTIONED PROGRAMMING CURRENTLY AVAILABLE

THE THREE COMMERCIAL NETWORKS (ABC, CBS & NBC)

- o Prime Time (100% captioned, 66 hours each week).
  Virtually all prime time programs (22 hours a week on each network).
- o News (at least 45 hours each week).
  Captioned news differs by network, ranging from 8 to 24.5 hours per week. All national evening news and prime time magazine programs are captioned. Breaking news reports, Presidential press conferences, and political conventions are captioned. Each network has had different policies on news; however, all major news programs should be captioned by early 1991.
- o Children's (100% captioned, at least 15 hours each week).
  All Saturday morning programs and after school specials.
- o Sports (all major national events, over 929 hours per year).
  Includes the Super Bowl, NFL Football, World Series, Major League Baseball Championships, the All-Star Game, NBA Playoffs and Championship, tennis and golf tournaments, the Olympics, etc.
- o Daytime and Fringe.
  One daytime drama on each network (15 hours per week), plus some syndicated programs.
- o Captioning is paid for through the combined contributions of the networks, program producers, advertisers, and government funds.

PUBLIC BROADCASTING (PBS)

- o Prime Time (virtually 100% captioned, 12 hours each week).
  PBS considers prime time 8-10pm, Sunday - Friday.
- o Children's and Daytime (19 hours per week).
  All children's programs and various other shows are captioned.
- o Many of PBS' 31 weekly hours of captioned programming are broadcast more than once on various stations.

FOX

- o Most of their original series programs which are broadcast Saturday, Sunday & Monday evenings are captioned (about 6 hours per week).

LOCAL NEWS CAPTIONING

- o At least 75 local stations are now closed captioning either their early evening or late night news programs; 15 additional stations plan to have captions by the end of the year.

SYNDICATION

- o At least 102 hours per week.

CABLE (Basic & Pay Channels).

- o About 178 hours per week.

HOME VIDEOS

- o Over 2,172 titles (movies, specials, etc.) captioned.

MUSIC VIDEOS

- o Over 95 titles.

COMMERCIALS

- o At least 5,329 commercials captioned per year.

(6/18/90)

Senator INOUYE. I thank you very much.

Senator Kasten.

Senator KASTEN. Mr. Chairman, I don't have any question, except when Mr. Ball referred to the necessity of getting an electronic engineer to figure out the switches and the different kinds of connections, my experience has been that a knowledgeable teenager next door can do it very quickly also.

Mr. BALL. If I may say so, Senator, that is one of the problems why this technology has not penetrated the elderly. It is the young who are familiar and comfortable with technology. But the elderly and hard of hearing people will not touch this unit.

Senator KASTEN. As we work with our tape cassettes, our speakers, our receivers, our VCRs, our TVs, our remotes, and get all confused, really, the average kid next door can come in and figure it out just like that.

Senator INOUYE. Thank you very much, Mr. Ball.

Mr. Huber.

STATEMENT OF BRUCE A. HUBER, VICE PRESIDENT OF MARKETING, ZENITH ELECTRONICS CORP., GLENVIEW, IL

Mr. HUBER. Thank you, Mr. Chairman, and good morning, Senator Kasten.

My name is Bruce Huber. I am the Vice President for Marketing for Zenith. We are the second largest manufacturer of color television in terms of brand share.

With all due respect to Tom, Mr. Friel, my esteemed colleague, I feel it is important to clarify that the EIA does not always speak for the entirety of the industry. And so, we appreciate those of you sticking in here to the bitter end to hear what we have to say, because I think you will find it interesting and that it will complement what has been said this morning.

We commend Senator Harkin for his introducing this legislation. The desired result is crystal clear to us, to help give the hearing impaired equal access to television programming. Zenith wholeheartedly supports the objective of this bill. We think the essence of the bill is not only timely, but appropriate.

We do have some concerns, though, with certain provisions, and we would like to take this opportunity to offer our suggestions as to how to address those concerns.

Zenith, as you may know, has a long history of developing products that address the needs of the hearing impaired. Some of you may recall that we were a pioneer in the hearing aid business back before World War II, and, more recently, we have been involved in captioning activities, including captioning all of our television commercials. Even as we look ahead to the future, the high definition transmission system that we have proposed to the FCC will include provisions for closed captioning.

In recent years, Zenith has even applied the teletext capability of our digital televisions to try to make closed captions available to more people. This story is chronicled in greater detail in the written testimony and I won't belabor that this morning.

It is not just to further illustrate our interest in the needs of the hearing impaired, but also to make the point that there is often more than one way to accomplish something, more than one way to skin a cat.

With that in mind, we think it would be unfortunate for the overall objectives of this legislation to suffer just because of a few operational details in the bill, as it is currently drafted. Congress is certainly correct in identifying the special needs of certain groups, and at times to require us manufacturers to address those needs. However, we believe Congress should stop short of dictating how we address those needs.

Specifying those details can stifle that competitive R&D that can lead to future improvements in the technology and future cost reductions that, of course, would benefit the hearing impaired.

It removes that incentive for private industry to develop better and more cost effective solutions as the technology matures and makes that possible.

There is a legislative precedent for this within the field of television. When Congress required TV manufacturers to include the UHF tuning capability in all television sets, it did not tell us how to design our UHF tuners. Congress established the broad objective. The FCC defined the technical framework, and then they left it up to us individual manufacturers, left it to our discretion as to how to work out the specific details.

This is why even today a Zenith tuner does not work in exactly the same way as those of our competitors. But they all deliver to the consumer the same benefit, the same end result. All the TV sets tune UHF channels.

Now, in contrast to that UHF precedent, this bill, as it is drafted, would appear to require our industry to design all the TVs around a specific chip or its direct equivalent. Earlier today, you saw that chip exhibited from this table, and you have heard the widely diverging estimates of the cost of building that chip into the TVs, from as little $3 to $15 or $20, even more.

But we think the purposes of this bill can be fully served without the costs having to be even that high. From our experience with captions and from our knowledge of this Line 21 technology, we are certain that higher performance and even lower cost solutions are possible.

Senator Kasten, in your earlier comment you acknowledged that obviously you have a grasp of how this will work in the free marketplace. We are only concerned that the language, as drafted, could be interpreted to prohibit that free competitive liberty to design and cost reduce.

Now, obviously, for competitive reasons I would stop short today of revealing our specific future product plans and the timing of our product introductions. But we felt it was important for the Subcommittee to know this morning that Zenith does have specific plans to offer much more cost effective Line 21 closed captioned capability built right into our TVs, whether or not this legislation is enacted.

I really wish Ms. Samms were still here to hear that at least one manufacturer is willing to take that first step.

So, Zenith strongly supports the intent of S. 1974. We believe that, with just a few minor changes in the language, this bill will

give our industry the ability to best serve our hearing impaired customers.

We have written to Senator Harkin with our specific suggestions. We have met with Senator Harkin's staff and with other key committee staffers. We have assured them that we will work hard to strongly support and work hard to get this bill passed, with those minor technical changes.

A copy of that letter [1] was included with the written testimony filed with the subcommittee. We are also making our views known to Congressman Owens and the key staffers working on the companion bill in the House.

Mr. Chairman, as Senate Bill 1974 moves forward, we recommend that you give us TV manufacturers the latitude to implement Line 21 captioned decoding in the best and most cost efficient manner.

I would entertain any questions that this may have stimulated.

[The statement follows:]

STATEMENT BY

BRUCE A. HUBER
VICE PRESIDENT, MARKETING
ZENITH ELECTRONICS CORPORATION

TO THE
UNITED STATES SENATE
COMMITTEE ON COMMERCE, SPACE AND TRANSPORTATION
COMMUNICATIONS SUBCOMMITTEE

Good morning, Mr. Chairman and members of the Subcommittee. My name is Bruce Huber. I am the vice president of marketing for the consumer electronics division of Zenith. We appreciate the opportunity to be here today to testify in support of the objectives of Senate Bill 1974. We commend Senator Harkin and Congressman Owens (who introduced the companion House Bill 4267) and their co-sponsors for introducing this legislation.

The desired result of the Television Decoder Circuitry Act is clear: to help give the deaf and hearing impaired equal access to television programming. Zenith wholeheartedly supports this objective and supports the expansion of Line 21 captioning. We believe that the essence of this bill is both timely and appropriate. We have some concerns, though, with particular provisions, and we would like to offer our suggestions on how to address those concerns.

[1] The letter was not reproducible.

Zenith has a long history of developing products that address the needs of the deaf and hearing impaired. Some of you may recall that Zenith was a pioneer in hearing-aid technology for decades. Since the mid 1980s, Zenith has included closed-captions in all of our TV commercials. And, as we look to the future, our Spectrum Compatible high-definition TV transmission system, as proposed to the Federal Communications Commission, will provide for closed-caption services.

For some five years now, Zenith has been producing digital TV sets with built-in teletext decoding capabilities. Teletext is, basically, an electronic newspaper that you read on TV for the latest news, sports, weather and other information. Recognizing that our digital TV sets also could provide consumers another way to receive closed captions, we have been encouraging broadcasters to "transcode" Line 21 into the teletext format, and thus transmit captions both ways. We have offered to give broadcasters the modest piece of equipment that does this.

Unfortunately, we have been unable to get the three major networks, PBS, Fox or even the National Captioning Institute to support our efforts -- even though we believe that there are more Zenith digital TVs than set-top Line 21 decoders in consumer homes today. Three cable programmers (HBO, Cinemax and Superstation WGN) have accepted our offer. So, at least on those three cable channels, closed-captions are now available -- not only to those who have a Line 21 set-top decoder, but also to the hundreds of thousands of Zenith digital TV owners.

Of course, I am not proposing that teletext is the solution to the concerns addressed by S.1974. I raise the issue of teletext as another example of Zenith's efforts to address the needs of the hearing impaired and, more importantly, to demonstrate that there is often more than one way to achieve the desired result. With that in mind, we believe it would be unfortunate for the overall objective of this legislation to suffer because of a few unnecessary operational details in the bill.

Congress is correct in identifying the special needs of certain groups, and at times requiring manufacturers to address them. However, we believe Congress should stop short of dictating the details of <u>how</u> manufacturers address those needs. Dictating these details can stifle competition, the competititive R&D that results in further performance improvements and cost-reductions. It removes the incentive, and the opportunity, for private industry to develop better and more cost-effective solutions as they become feasible through advancing technology.

There is a legislative precedent in the television field. When Congress required manufacturers to include <u>UHF</u> TV tuning capability in all TV sets, it did not tell us how our UHF tuners had to operate. With Congress establishing the objective and the FCC defining the broad technical framework, the important operational details -- details that can have profound impact on cost-effectiveness and performance -- were left to the discretion of the individual manufacturers.

That's why, even today, a Zenith tuner doesn't operate in exactly the same manner as the tuners of our competitors. As one manufacturer provides new features or improved performance, others respond with improvements of their own, for competitive advantage in the marketplace. But all deliver the same basic consumer benefit: UHF tuning. And often a secondary benefit, lower cost, has been the result of this competition as well.

You may not realize that by defining display requirements, the bill, as drafted, would appear to require our industry to design all TVs around a specific chip or its direct equivalent. That would freeze performance at levels attainable by current technology and chill the competitive R&D that could lead to future performance enhancements and cost reductions.

You have heard the widely divergent estimates of the cost of including closed caption decoding circuitry into TVs -- with manufacturing costs ranging from as little as $3 per set to as much as $15 or more. As an example, let's use a $10 average. In our industry, $10 in variable cost normally translates into $25 at retail. With 20 million sets sold in the United States annually, this is a half-billion-dollar expense to be borne every year by American TV buyers. We think this cost is unnecessary.

From our experience with teletext, and our knowledge of Line 21 technology, we are certain that high-performance, lower-cost solutions are possible for television manufacturers. It can be done better, for less money.

Although for competitive reasons, I would choose not to discuss our future product timing and specifics, we think it is important for the Subcommittee to know that we are already working on a plan to offer much more cost-effective Line 21 closed-caption capability built into our TVs, whether or not legislation is enacted.

Clearly, the intent of this legislation is to correct the inequality that exists for those who cannot hear or do not understand the sounds that go with the pictures on their TV. This is a matter of simply requiring that all relevant TVs be able to receive and decode Line 21 closed-caption subtitles. Again, Zenith strongly supports this effort.

At the same time, though, we believe that -- with just a few simple language changes -- this bill will give our industry the ability to best serve both its hearing impaired and hearing customers. We have written to Senator Harkin with a few specific suggestions and will work with key staffers to offer any assistance we might be able to provide. A copy of that letter is included as an appendix to our written testimony filed with the subcommittee. We also are making our views known to Congressman Owens and key staffers working on the companion bill in the House.

Mr. Chairman, as S.1974 moves through the process, we recommend that you provide receiver manufacturers the latitude to implement caption decoding capability in the best and most efficient manner. Thank you.

Senator INOUYE. Mr. Huber your suggestion has much merit, and I have just instructed the Chief Counsel of the staff to get together with you to work out appropriate language. It is not our intention to limit the technology to one narrow area, and I realize that there are many other sentries to follow us, and who knows what will be happening 10 years from now.

We want to make certain that we give you the widest latitude in the research and development of new techniques and technologies that can provide closed caption services at the lowest cost and with the greatest efficiency.

So, if you will get together with our staff, I think we can work out something.

Mr. HUBER. Thank you.

Senator INOUYE. Senator Kasten.

Senator KASTEN. Mr. Chairman, I just want to say that I look forward to working with you, with members of the Committee staff. Clearly, the intent here is not to narrow competitive opportunities, it is to widen them. My hope is that we are not only going to have an opportunity for a whole group of Americans to have access to television and videos, and whatever, but my hope also is that we have a number of different companies, including Zenith, but maybe even some companies with 40 or 50 employees who are small businesses, who are going to find a little niche right here and who are going to jump in and make money and invest and create jobs in the process of working with this whole, new area.

So I view this as a kind of win/win situation. We sure want to be certain that this legislation does not cut off any entrepreneurial opportunities for your company or for other companies across the world.

So I look forward, Mr. Chairman, to working with you on an amendment in this section of the language, to make it clear that we want the energy of competitiveness to be promoted in this legislation.

Senator INOUYE. Mr. Friel, I may have been a bit harsh in my questioning. If so, I apologize. And in order to balance the books, you will have the last word.

Mr. FRIEL. Senator, first, no apology is needed. Thank you very much.

I guess the only thing that I would add would be to request that the Congress Research Service memorandum also be part of the record because it is at variance with the document that you entered into the record.

Senator INOUYE. It will be so ordered.

Mr. FRIEL. Thank you.

I guess I was intrigued by Senator Kasten when he talked about competitiveness, and in listening to Mr. Ball, that whatever Mr. Ball sells, whether through Sears or through whomever, he mentioned it costs $180. I am not an expert on decoding technology, but I will provide for the record and for this panel and subcommittee the name of the company who is selling the captioning device for $99.95.

I guess it is in just that spirit of competitiveness that, with one broad sweep, we put that person out of business who may, in fact, be in competition with Mr. Ball, because only a large manufacturer

could afford the design and research technology to incorporate microchips and microprocessors into televisions. So we almost insure that the large television manufacturer continues to compete and sell and thrive and prosper in America at the expense of some small entrepreneurial company.

I appreciate having the last word, Senator.

Mr. Chairman, thank you very much.

Senator INOUYE. I thank you and I thank all of you for assisting us this day.

As most of you will recall, this matter has been reported to the full Committee. It will be reported to the full Committee with the recommended amendment that will be discussed with Mr. Huber and members of the industry. I recommend that it be amended accordingly.

I hope that at the next markup this matter will be reported to the full Senate.

Thank you very much.

[Whereupon, at 11:25 a.m., the Subcommittee adjourned, to reconvene upon the call of the Chair.]

[The following information was subsequently received for the record:]

Congressional Research Service • The Library of Congress • Washington, D.C. 20540

Memorandum May 3, 1990

TO : Honorable [redacted]
Attention: [redacted]

FROM : Bernevia M. McCalip
Analyst in Business and Government Relations
Economics Division

SUBJECT : The Proposed Television Decoder Circuitry Act of 1990

In response to your request for information on pending legislation which would require the installation of decoder circuitry in new televisions with screens 13 inches or larger, we are providing the following.

Legislation respectively introduced on November 11, 1989 and March 14, 1990, by Senator Harkin (S. 1974) and Representative Major R. Owens (H.R. 4267), would amend the Communications Act of 1934 by requiring that by October 1, 1992 any television with a screen 13 inches or larger, manufactured or imported for use in the United States, be equipped with built-in decoder circuitry designed to display closed-captioned television transmissions. The bills which are similar, would also (a) require the Federal Communications Commission (FCC) to evaluate, within five years, any compatibility issues and advancement in television technology that would affect service to closed captioned consumers, and (b) take any action necessary to amend existing FCC rules to ensure that the decoder chip circuitry is capable of continuing service to closed-caption consumers. S. 1974 is currently cosponsored by 7 Senators and H.R. 4267 to date has 31 sponsors. The House Energy and Commerce Subcommittee on Telecommunications, Consumer Protection and Finance held hearings on H.R. 4267 on Wednesday, May 2, 1990. The Senate Commerce Subcommittee on Communications has scheduled hearings on its bill on June 20, 1990.

Both the House and Senate bills are endorsed by several organizations: Gallaudet University; National Association of the Deaf; the American Speech-Language-Hearing Association; the National Center for Law and the Deaf; Self Help for the Hard of Hearing; the Conference of Educational Administrators Serving the Deaf; and the Conference of American Instructors of the Deaf. In addition, several television manufacturers have indicated their interest in installing decoder modules in

newly manufactured TV's.[1] Neither we nor the respective committees are aware of any opposition to the bills.

According to the Commission on the Education of the Deaf, only 170,000 decoders have been sold since introduction on the market. It is estimated that the cost of a decoder currently ranges between $160 and $200. Under the current provisions of both H.R. 4267 and S. 1974, a built-in decoder circuitry chip can be manufactured for between $5 and $10.[2]

It is interesting to note that while the amount of programming that is closed-captioned has grown considerably over the past decade, most programs aired during prime time, the peak viewing period, are not captioned. The American Broadcasting Corporation (ABC) is the only known network that captions 100 percent of its prime time network schedule. According to the National Captioning Institute, the future of closed captioned television service is

> inextricably tied to the number of households who access it. In order to eliminate the need for ongoing federal funds and to make the captioned service economically viable and self-sustaining, captioning must reach into at least 500,000 homes and ideally 1,000,000 by 1990.[3]

The Commission on the Education of the Deaf has stated that

> ...[if] decoders were more widely used and viewership to grow, the marketplace can be relied upon to increase captioning because more viewers would be reached at a decreased per capita cost. Increased decoder ownership--not just more captioning--is required for a strong, selfsustaining captioning service.[4]

The Commission on the Education also feels that the "low number of decoders purchased by consumers resulted in a lack of commercial incentives for private funding of captioning service (the Federal Government currently funds about 40 percent of closed-captioning services) and was one of the main impediments to a self-sustaining captioning service.[5]

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[1] Major R. Owens. Remarks in the House. *Congressional Record*, Daily Edition, v. 136, March 1, 1990. p. E488. Also, Senator Harkin. Remarks in the Senate. *Congressional Record*, Daily Edition, v. 135, November 21, 1989. p. S16769.

[2] Ibid.

[3] Senator Harkin. Remarks in the Senate. p. 16770.

[4] Major R. Owens. Remarks in the House. p. E488.

[5] Ibid.

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CaptionAmerica

COMMENTS REGARDING S. 1974:

THE TELEVISION DECODER CIRCUITRY ACT OF 1990

UNITED STATES SENATE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

SUBCOMMITTEE ON COMMUNICATIONS

June 20, 1990

PREPARED BY JEFFREY M. HUTCHINS

CHIEF EXECUTIVE OFFICER

CaptionAmerica

These comments have been prepared to supplement oral testimony given before the Subcommittee on Communications on June 20, 1990, regarding the Television Decoder Circuitry Act, the most important piece of legislation ever introduced to enhance media access for millions of hearing-impaired Americans.

My name is Jeff Hutchins, and I am currently Chief Executive Officer of CaptionAmerica, a privately owned company based in Pittsburgh dedicated exclusively to providing captioning services to program suppliers. I have worked full-time in captioning since 1973, longer than anyone else in the world, in virtually every aspect of the business. After 7 years with The Caption

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Center at WGBH Television in Boston, I joined the National Captioning Institute shortly after its founding, where I served almost 7 years as Director of Systems Development. I led the development of hardware and software used for caption creation, transmission, and decoding, and I am still active in these areas. My experience has helped me gain unique insight into the issues and technologies of captioning.

For the past 10 years, since closed captioning was introduced to consumers, many people have spoken eloquently and convincingly of the need for captioning and of its tremendous benefit to hearing-impaired citizens, people learning English as a second language, and children learning to read. Few people, if any, will dispute the value of captioning, but its value, by itself, is not reason enough to require decoding circuitry to be built into most television receivers sold in America.

S. 1974 is necessary because without a mandate television set manufacturers have not made and will not make receivers which include this vital technology. Until decoders are readily and economically available, the population of decoder owners will continue to be small and the growth of captioned programming will be adversely affected. We have the experience of 10 years of disappointing sales of set-top decoders as proof of the problem,

10 years in which not even one brand-name television receiver was manufactured with a built-in caption decoder.

In testimony before the House subcommittee considering companion legislation, the representative from the Electronic Industries Association (EIA) said that "as things stand now consumers have a choice" of which features they want in a television set. Yet not one member of the EIA has ever provided consumers with the option of viewing captions, though hearing-impaired viewers buy tens of millions of dollars worth of TV sets every year. All told, 25 million TV sets are sold in America each year, and not one has a caption decoder. The free market has failed to give would-be caption viewers a choice.

It is useful to question why this situation exists. The answer is fairly obvious. First of all, if the necessary decoder components are produced in limited quantity, the cost per TV set will be relatively high because development and production costs cannot be amortized over the large volume needed to bring prices down. If Manufacturer A builds this expensive decoder into one or more models while Manufacturer B does not, Manufacturer A's sets will now cost significantly more than B's while offering only one unique benefit for the added price. Thus, A's market will be reduced to those consumers specifically shopping for that one benefit. The only way for Manufacturer A to make this

venture profitable is to boost the cost of the decoder-equipped televisions to compensate for the lower volume, and the resulting cost of the set will be self-defeating.

In other words, no manufacturer can be expected willingly to build a decoder-equipped television because that set will be non-competitive and unprofitable.

On the other hand, if every manufacturer is required to build decoders into every television set of similar models, two good things will happen. First, the cost of decoder components will drop dramatically (as will the cost of installation). Second, the incremental cost of producing sets will be the same for all manufacturers, meaning that none will lose any competitive advantage. They will all, therefore, maintain profitability on their decoder-equipped lines and will be able to hold retail cost to a minimum.

Explaining why market forces have kept manufacturers from making decoder-equipped televisions does not address the other major issue involved in selling decoders, namely consumer demand. Admittedly, consumers have not shown an overwhelming appetite for decoders, and it is important to understand why.

Many factors have contributed to the disappointing sales of decoders since 1980. Reasons most often cited include the price of the devices, the difficulty consumers have in finding them (for several years they were available almost exclusively through mail-order, and even today they are rarely in stores), the lack of options in decoders (never more than one model has been offered at a time), shortage of captioned programming, generally low awareness about captioning on the part of viewers (spending millions to advertise decoders would add to their cost, making them further out of reach), and the fact that some viewers would feel stigmatized as being "deaf" if they owned a decoder.

While each of these factors has no doubt played some part in reducing sales, CaptionAmerica believes two other less-discussed factors have taken a heavy toll: the failure of viewers to see the benefits of captioning, and the technical complexity of using a set-top decoder. Both of these problems would be completely eliminated if S. 1974 is passed.

There is much anecdotal evidence that consumers do not perceive or understand the benefit of captioning. I will present two examples from my personal experience.

Several years ago, my father, Mel Hutchins, remarried. His new wife, who has developed a severe hearing loss, was repeatedly

exposed to captioned television whenever she visited my home. Although Olivette acknowledged her hearing loss and she wore hearing aids, she denied any desire for a decoder. She said decoders were for deaf people, and that she could make do by turning up the TV sound. (Although she lived in an apartment building and had complaints from neighbors, she dismissed their concerns. It is not uncommon for hard-of-hearing people to reject such complainants as cranks because to the hard-of-hearing person the TV sound is not loud.) Finally, my father brought home a decoder against her wishes and hooked it up. With captions on her favorite shows, she began to realize what she had been missing. She enjoyed the shows more and lowered the sound volume to normal levels, pleasing both her husband and neighbors. She now says she would not be without captions. She calls the decoder "a gift of communication." Her quality of life has improved. Yet she would not today know the benefits of captioning if the decoder were not placed in her home despite her resistance.

Although no one in my immediate family is hearing-impaired, we have always had a decoder on our family TV set, and that decoder is always on. My two daughters, aged 13 and 8, have grown up with captions on nearly all the programs they watch. While I like to think that they may have inherited some of their abilities, I am convinced that their superior reading and

spelling skills are in good part attributable to their having seen simultaneously in written form all the words they hear on TV. Independent studies confirm that children learning to read benefit from exposure to captions. Yet it is unlikely to expect that parents of hearing children will run out and buy a set-top decoder and hook it up at home.

Connecting a set-top decoder to one's television can be a daunting experience, even for someone who is far more technically proficient than the average consumer. The connections are straightforward and relatively easy for someone who has only an antenna and a TV set, but the complexity grows rapidly with each addition to the configuration. In these days, when more than 50% of the country has cable TV service and VCRs, complex hook-ups are the norm. Difficulty in setting up a decoder or problems related to faulty set-up are among the most common complaints captioning agencies receive from caption audiences.

It has been suggested that audiences might be better served if Congress were to require that all programs be captioned. Indeed, widespread captioning is a goal which we all share. But few, if any, consumers are spurning decoders due to lack of captioned programming, and a Congressional mandate to program suppliers to caption would wreak havoc on the television industry or would force that industry to offer the most shoddy "captions"

to be in compliance. No one would benefit from such a mandate, and there would still be no reasonable choice of decoders.

We have been asked elsewhere whether we might accept a compromise in which manufacturers built decoders into a few selected models. Our response is we would not accept such a compromise. That approach would fail to meet any of the goals of this legislation. The resulting "deaf sets" would be among the most expensive televisions and would be unlikely to be carried in store inventories because stores cannot afford to give valuable floor space to sets with limited appeal and high cost.

CaptionAmerica feels strongly that any major retreat from the reasonable provisions of S. 1974 will have deleterious effects, and we urge its passage, intact, by the Committee and by the full Senate.

AAAA
American Association of Advertising Agencies Inc., 1899 L Street, N.W., Washington, DC 20036 • (202) 331-7345
Executive Vice President

June 19, 1990

The Honorable Daniel K. Inouye
United States Senate
Subcommittee on Communications
SH-722 Hart Senate Office Building
Washington, D.C. 20510-1102

Dear Chairman Inouye:

In reference to the upcoming hearing in the Communications Subcommittee on S. 1974 on June 20, 1990, I would appreciate your assistance in giving the widest possible circulation to the position of the American Association of Advertising Agencies to expand the use of closed captioned systems for the hearing impaired.

As you may know, the American Association of Advertising Agencies is the trade association of the advertising agency business. Our over 750 members are responsible for the placement of over 80 percent of all national advertising and a substantial portion of all local and regional advertising as well. Largely as a result of the activities of our members, the numbers of closed captioned commercial messages and public service announcements have increased substantially in the past several years.

The enclosed brochure reprints a recently revised resolution by the American Association of Advertising Agencies Board of Directors that you may find appropriate to insert in the record of your hearing. Although not directly relevant to the narrow issues raised by S. 1974, this resolution clearly supports the goal of your proposal to facilitate the availability of programming and information to the public.

If I can assist you on this or any other issue, please do not hesitate to contact myself or John Kamp of my office at 331-7345.

Sincerely,

Harold A. Shoup

Attachment 1/

1/ The attachment was not reproducible.